KAPLAN MEDICAL

AnEmia

Anemia

AnEmia

AnEmia

Symptoms

KAPLAN MEDICAL

AnEmia
Simptoms
Hg/HCT

ANEMIA
SYMPTOMS
Hg/HCT

Anemia

Symptoms

AnEmia
Symptoms
HCT
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35 Ø
KAPLAN MEDICAL

AnEmia

Symptoms

HCT

≥30-35 ∅

25-30 Tired, fatigue

Anemia
Symptoms
HCT
30-35
25-30 Tired fatigue
25 Dyspnea
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue

20-25 Dyspnea

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue

20-25 Dyspnea

<2

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired fatigue

20-25 Dyspnea

<20 Confused

Anemia
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30–35 Ø

25–30 Tired/fatigue

20–25 Dyspnea

<20 Confused

Die =>

Anemia

Tired/fatigue

Dyspnea

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired fatigue

25 Dyspnea

Confused

Die => Ischemia

ANEMIA
SYMPTOMS
HCT
>30-35
25-30
20-25
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue

25 Dyspnea

Confused

Die => Ischemia

Anemia
Symptoms
HCT
>30-35 ∅
25-30 Tired/fatigue
20-25 Dyspnea
<20 Confused
Die ⇒ Ischemia
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35 Ø
25-30 Tired/fatigue
20-25 Dyspnea
<20 Confused
Die => Ischemia
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35 Ø
25-30 Tired fatigue
20-25 Dyspnea
<20 Confused
Die => Ischemia
KAPLAN MEDICAL

Anemia
Tired fatigue
Dyspnea
KAPLAN MEDICAL

Anemia
KAPLAN MEDICAL

Anemia
Tired fatigue
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired/fatigue

20-2 Dyspnea

<2 Confused

Pre => Ischemia

KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue — MCV

25 Dyspnea

–Confused

Die => Ischemia

Anemia

Symptoms

HCT

>30-

25-30 fatigue

20- dyspnea

MCV

High

Low

AnEmia

High

B12/Fol

Tired/fatigue

MCV

Low

Anemia

Symptoms

CT

30-35 ∅

25-30 Tired/fatigue

20-25 Dyspnea

<20 Confused

Die => Ischemia

High

B12/Folate

Liver, Alcohol

MCV => Normal

Low

Anemia

Symptoms

Tired/fatigue

Dyspnea

→ High
B12/Folate
Liver, Alcohol

MCV → Normal

→ Low

Anemia

Symptoms

Tired/fatigue

Dyspnea

High
B12/Folate
Liver, Alcohol

MCV

Low

Anemia

Symptoms

Hyper → B12/Folate

Liver, Alcohol

High

MCV → Normal

Low

Anemia

Symptoms

Hyper Segmented → B12/Folate

High

Liver, Alcohol

MCV → Normal

fatigue

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue

Hyper Segmented → B12/Folate

High

Liver, Alcohol

MCV → Normal

> Low

Anemia

Symptoms

Hyper Segmented → B12/Folate, Liver, Alcohol

High

MCV → Normal

Low

HCT

>30-35 ∅

25-30 Tired/fatigue

20-25 Dyspnea

<20 Confused

Die ⇒ Ischemia

Anemia

Symptoms

Hyper Segmented → B12/Folate, Liver, Alcohol

High

HCT

>30-35

25-30

MCV → Normal

Low

Iron

Anemia

Symptom

HCT

>30-

25-3

20

Fatigue

dyspnea

Hyper Segmented → B12/Folate

liver, Alcohol

↗ High

MCV → Normal

Loss/Hem

↘ Low Sideroblastic

Iron, Chronic

Thalasem

Anemia

Hyper Segmented → B12/Folate

High

Liver, Alcohol

Tired/fatigue

Dyspnea

MCV → Normal

Loss/Hemolysis

Low Sideroblastic

Iron, Chronic

Thalassemia

Anemia

Symptoms

HCT

>30-35

25-30

20-25

→ High
B12/Folate
Liver, Alcohol

MCV → Normal
Loss/Hemolysis

Anemia

Symptoms

Hyper Segmented → B12/Folate

Liver, Alcohol

0-35

5-30 Tired/fatigue

25 Dyspnea

Confuse

e => Ischemia

MCV => Normal

Loss/Hemolysis

Sideroblastic

Anemia

Symptoms

HCT
>30-35 ∅
25-30 Tired
20-25 Dys
<20

→ Hgh
→ B12/Folate
Liver, Alcohol

MCV → Normal
Loss/Hemolysis

Introduction to Anemia

End

↓mcv

ns Sx

Ø

Tired/fatigue

Dyspnea

Confus

e => Isc

ANEMIA

Symptoms

↓MCV

HCT

>30

25- fatigue

20

<

↓ mcv

Ss

red fatigue
Dyspnea
onfuse
Ischemia

Anemia

Symptoms

HCT

>30-35

25-30

20-25

<20

KAPLAN MEDICAL

↓MCV

Iron

↓MCV
KAPLAN MEDICAL

↓ MCV

Iron

Chronic

Siderobl

Anemia

Symptoms

HCT

>30

25-3

fatigue

20

ion

Chronic

↓MC

Anemia

Symptoms

HCT

>30-3

25-30

20- 2

<20

↑ loss

Iron

1 mg/Day

Chronic

↓ MCV

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigue

20-25 Dyspnea

Confuse

Die => Ischemia

Anemia

Symptoms

↑Loss

Iron

1 mg/Day

Tired/fatigue

Dyspnea

Diffuse

Ischemia

Anemia

Symptoms

Tired/fatigue

Dyspnea

↑ Loss

Iron

1 mg/Day

KAPLAN MEDICAL

AnEmia

Symptoms

Need

↑Loss

Iron

1 mg/Day

fatigue

Dyspnea

Anemia

Symptoms

↑ Loss

Iron

Need

1 mg/Day

KAPLAN MEDICAL

Anemia

Symptoms

Tired fatigue

Dyspnea

↑ Loss

Iron

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb

AnEmia

Symptoms

HCT

>30-3

25-30 Fatigue

20-

<2

↑Loss

Iron

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg

Chronic

↓m

KAPLAN MEDICAL

Anemia

Symptoms

Tired fatigue

Dyspnea

↑Loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Anemia
Symptoms
HCT
↑Loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
KAPLAN MEDICAL

Anemia

Symptoms ↑↑ SS

HCT

> 30-35 Ø

25-30 Tired + fatigue

Dyspnea

Confuse

Ischemia

↑ loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

Anemia
↑Loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
Excrete
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35
25-30
↑Loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
Excrete
KAPLAN MEDICAL

Anemia

Symptoms

Tired/Fatigue

Dyspnea

Confuse

Die → Ischemia

Loss

Iron

Need 1 mg/Day

Present 5-6 mg/Day

Absorb Max 4 mg/Day

Excrete

KAPLAN MEDICAL

↓mcv

Sideroblas

Thalasemia

MCV

Sidero...

Thalassemia

Major

Hemochrom

Liver

Heart

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired

20-25 Dys

<20 - Co

Loss

Iron

Need

1 mg/Day

Present 3-6 mg/Day

Absorb Max 4

Secrete

Chronic

KAPLAN MEDICAL

↓MCV

ic

Sideroblastic

Thalasemia

Major

Hemochrom

- Liver
- Heart
- Pancreas
- Infertility

Transfusion

2-4 units

KAPLAN MEDICAL

MCV

Sideroblastic

Thalassemia

Major

Hemochromo

Liver

Heart

Pancreas

Infertility

Transfusion

2-4 units

Packed cells

↓MCV

Chronic

Sideroblastic

Thalassemia

Major

Hemosiderosis

· Liver

· Heart

· Pancreas

· Infertility

Transfusion

Packed cells

1 mg/mL

550 mL/unit

KAPLAN MEDICAL

↓MCV

...nic

Sideroblastic

Thalassemia

Major

- ...ochro...
- ...r
- Heart
- Pancreas
- Infertility

Transfusion

2-

Packed cells

1mg/mL

350mL/unit

KAPLAN MEDICAL

AnEmia
Symptoms
HCT
>30-
25-30
20-
<20
↑ Loss
Iron
Need
1 mg/Day
Pregnant
Absorb Max 4 mg/Day
Excrete
Chronic
KAPLAN MEDICAL

↓MCV

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired

20-25

<20

↑Loss

Iron

Need 1 mg/Day

Pregnant 3-6 mg/Day

Absorb max 4 mg/Day

Excrete

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired + fatigue

20-25 Dyspnea

<20 Confuse

Die => Ischemia

↑Loss

Iron

Need

Pre

Absor

Exc

↓ MCV

Chronic | Sideroblastic | Thalassemia

Major
Hemochromo
· Liver
· Heart
· Pancreas
· Infertility
Transfusion
2-
Packed cells
4 mg/ml
350 ml/unit
Desferrioxamine

KAPLAN MEDICAL

Anemia

Symptoms

↑ loss

Iron

Chronic

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Tired/fatigue

Dyspnea

Anemia
…ptoms
Tired fatigue
Dyspnea
Confuse
Ischemia
↑Loss
Iron
Need
1 mg/Day
Pregnant 3-6 mg/Day
Absorb max 4 mg/Day
Excrete
Chronic
KAPLAN MEDICAL

↑loss

↓MCV

S/S

Need

Iron

Chronic

Sidaroblast

Pregn

Absorb

Excrete

60 ♂ of Fe

Tired + fatigue

Dyspnea

Confuse

Ischemia

↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb Max 4mg/Day
Excrete
↓mcv
Chronic
Sidero
60
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35

25-30 Tired

20-

<20

↑ Loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

↓ MC

Chronic

60 ♂

Tired

Stool ⊖ x

Anemia
Symptoms
HCT
↑ Loss
Iron
Need
1 mg/Day
Absorb
Max 4 mg/Day
Excrete
Chronic
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35
25-30
↑ loss
Iron
Need
1 mg/Day
Absorb max 4 mg/Day
Excrete
Stool
KAPLAN MEDICAL

↑Loss

Need — Iron 1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

↓MCV

Chronic

60 ♂ officer

tired

Stool ⊖ x3

Colonoscopy

↑Loss

Iron

Need 1mg/Day

Pregnant 3-6 mg/Day

Absorb max 4mg/Day

Excrete

↓MCV

Chronic

Sideroblastic

60 ♂ Officer

Tired HCT 30

MCV 68

Stool ⊖ x3

Colonoscopy

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired/fatigu

20-25

<20

↑loss

Iron

1mg/Day

max 4mg/Day

xcrete

↓MCV

Chronic

60 ♂

Tired

Stool ⊖ x

Colonos

Anemia

Symptoms

↑ Loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

Tired/fatigue

Dyspnea

Confuse

Die → Ischemia

ANEMIA
HCT
25-30
GI
↑loss
Iron
Need
1mg/Day
Pregnant 3-6 mg/Day
Absorb max 4mg/Day
Excrete
Chronic
KAPLAN MEDICAL

Anemia
Symptoms
HCT
25-30
GI
↑loss
Need
Iron
1 mg/Day
Absorb max 4 mg/Day
Excrete
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35
25-30
20-25
GI
↑loss
Need
Iron
1mg/Day
Pregnant 5-6mg/Day
Absorb max 4mg/Day
Excrete
Chronic
KAPLAN MEDICAL

nEmia

mptoms

CT

30-35

5-30 Tired fa

0-25 Dysp

20 Co

Die

GI → ↑loss

Need Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

↓MCV

Chronic

KAPLAN MEDICAL

nEmia

ymptoms ↑ss

CT

30-35 ∅

25-30 Tired fati

20-25 Dyspn

<20 Cons

Die

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

↓MCV

Chronic

Any RA

Cancer

ESRD

Anemia
Symptoms
HCT
GI
↑loss
Iron
Need
1mg/Day
Pregnant
Absorb max 4mg/Day
Excrete
KAPLAN MEDICAL

Anemia

Symptoms ↑SS

Tired/fatigue

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 3-6 mg/Day

Absorb max 4mg/Day

Excrete

Anemia

Symptoms

GI → ↑ loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max

Excrete

KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35

25-30

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 3-6 mg/Day

Absorb max 4mg/Day

Excrete

Anemia

Symptoms

HCT

>30-35

25-30 Tire

20-25

<20

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 3-6 mg/Day

Absorb max 4mg/Day

Excrete

Anemia
Symptoms
HCT
>30-35
25-30
20-25
<20
GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
Excrete
↓MCV
Chronic
Any RA
ESRD
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb Max 4mg/Day
Excrete
KAPLAN MEDICAL

GI
↑loss
Iron
1mg/Day
max 4mg/Day
↓MCV
Chronic
Any RA
Cancer
ESRD
Lead
KAPLAN MEDICAL

GI
↑loss
Iron
Need
Pregnant
Absorb max
Excrete
↓MCV
Chronic
Any RA
Cancer
ESRD
Sideroblastic
KAPLAN MEDICAL

ANEMIA
SYMPTOMS
HCT
>30-35
25-30
GI
Loss
Need
Iron
1 mg/Day
Absorb
Max
Excrete
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired fati

20-25 Dys

<20

GI → ↑ loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

Chronic

Any RA

Cancer

ESRD

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

>30-35 Ø

25-30 Tired/fatig

20-25 Dysp

<20 - Co

Die

need

Pregnant 6 mg/Day

Max 4 mg/Day

GI → ↑loss

Iron

1 mg/Day

Chronic

Any RA

Cancer

→ ESRD

↓MCV

AnEmia

Symptoms

HCT

>30-35 Ø

25-30 Tired

20-25 Dyspnea

<20 Conf

GI → ↑Loss

Need Iron

1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

↓MC

Chronic

Any RA

Cancer

ESRD

GI
↑loss
Iron
Need
Abs
Excr
↓MCV
Chronic
Any RA
ESRD
Sideroblastic
Alcohol
Lead, INH
KAPLAN MEDICAL

↓MCV
Chronic
Any RA
ESRD
Sideroblastic
Alcohol
Lead
Thalassemia
Major
Hemochromo
Liver
Heart
Pancreas
Infertility
Transfusion
Packed cells
350 ml/unit
Desferroximine
KAPLAN MEDICAL

↓MCV

Chronic

Sideroblastic

Alcohol
Lead, INH

Thalasemia
Trait

Packed

↓ MCV

loss

Iron

mg/Day

≤ 6 mg/Day

max 4 mg/Day

Chronic

Any RA

Cancer

→ ESRD

Sideroblastic

Alcohol

Lead INH

Thalassemia Trait

↓↓↓ MCV

KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30

25-

20-

<

Fatigue

Dyspnea

Confuse

GI → ↑ loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

Chronic

Any RA

Cancer

ESRD

ANEMIA
SYMPTOMS
HCT
>30-35 Ø
25-30 Tired
20-25
<20
GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/Day
Absorb Max 4mg/Day
Excrete
KAPLAN MEDICAL

Anemia

Symptoms

Tired/fatigue

GI → ↑ loss

Iron

Need 1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

Anemia
Symptoms
HCT
>30-35
25-30
20-25
GI
↑loss
Need
Iron
1mg/Day
Absorb max 4mg/Day
Excrete
Chronic
Any RA
Cancer
ESRD
KAPLAN MEDICAL

GI → ↑loss

Iron

Need 1 mg/Day

Pregnant 3-6 mg/Day

Absorb max 4 mg/Day

Excrete

↓MCV

Chronic

Any [illegible]

Sideroblastic

Alcohol

Lead, INH

Anemia

Symptoms

HCT

>30-35 Ø

25-30 Tired

20-25

<20

GI

↑ loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

Excrete

Chronic

KAPLAN MEDICAL

Anemia
GI
↑loss
Need
Iron
1mg/Day
Pregnant 3-6 mg/Day
Absorb max 4mg/Day
Excrete
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-3

25-30

20-2

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 3-6 mg/Day

Absorb max 4mg/Day

Excrete

Chronic

Any RA

Cancer

ESRD

loss

Iron

mg/Day

6 mg/Day

Max 4 mg/Day

↓ MCV

Chronic

Sideroblastic

Alcohol

Lead, INH

Thalassemia

Trait

↓↓↓ MCV

↑ Red cell Count

Smear

Target Cells

Anemia
Symptoms
HCT
GI
↑ Loss
Need
Iron
1 mg/Day
Absorb max 4 mg/Day
Excrete
Chronic
Any RA
Cancer
ESRD
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired

20-25 Dysp

<20

GI → ↑loss

Need Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

Any RA

Cancer

→ ESRD

KAPLAN MEDICAL

GI
↑ loss
Iron
Need
1 mg/Day
Absorb Max 4 mg/Day
Excrete
↓ mcv
Chronic
Any RA
Cancer
ESRD
KAPLAN MEDICAL

Anemia

Symptoms

HCT

>30-

25-3

20

fatigue

dyspnea

GI ↑loss

Need Iron

1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

↑RDW

↓MCV

Chronic

Any RA

Cancer

ESRD

Anemia

Symptoms

HCT

>30-35

25-30

20-

GI → ↑loss

Iron

Need 1 mg/Day

Pregnant 3-6 mg/Day

Absorb max 4 mg/Day

Excrete

↑RDW

Chronic

Any RA

Cancer

→ ESRD

KAPLAN MEDICAL

Anemia
Symptoms
GI
↑loss
Need
Iron
1mg/Day
Absorb max 4mg/Day
Excrete
↑RDW
Tired/fatigue
Dyspnea
KAPLAN MEDICAL

AnEmia
Symptoms
HCT
>30-35
25-30
GI
↑loss
Iron
Need
1mg/Day
Pregnant
Absorb max 4mg/Day
Excrete
↑RDW
KAPLAN MEDICAL

Anemia
Symptoms
HCT
Need
Iron
1mg/Day
Pregnant 5-6mg/Day
Absorb max 4mg/Day
Excrete
GI
↑loss
↑RDW
Dyspnea
Confuse
KAPLAN MEDICAL

Anemia
Symptoms
Tired fatigue
Dyspnea
Confuse
Die => Ischemia
GI
↑ loss
Iron
Need
1 mg/Day
Pregnant 3-6 mg/Day
Absorb max 4 mg/Day
Excrete
↑ RDW
Chronic
Any RA
Cancer
ESRD
KAPLAN MEDICAL

Anemia

Symptoms

HCT
>30-35 Ø
25-30 Tired
20-25 Dys
<20

GI → ↑Loss

Need — Iron — 1 mg/Day
Present 5-6 mg/Day
Absorb max 4 mg/Day
Excrete

Chronic
Any RA
Cancer
ESRD

↓M

KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35
25-30
20-25
<20
GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
Excrete
RDW
KAPLAN MEDICAL

Anemia
HCT
Need
Iron
Excrete
RDW
New
KAPLAN MEDICAL

Anemia

Symptoms

GI → ↑ loss

Iron

Need 1 mg/Day

Absorb Max 4 mg/Day

Excrete

New

Anemia
Symptoms
HCT
>30
25-3
20
GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
Excrete
↑RDW
Hg
New
Any
KAPLAN MEDICAL

Anemia
Symptoms
HCT
>30-35
25-30
GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
Excrete
RDW
Hg
New
KAPLAN MEDICAL

Anemia
Tired fatigue
GI
↑ loss
Iron
Need
1 mg/Day
Absorb max 4 mg/Day
Excrete
↑ RDW
Hg
New
KAPLAN MEDICAL

Anemia

Symptoms

HCT

30-35

-30 Tired/fatigue

25 Dyspnea

Confuse

Ischemia

GI → ↑ loss

Iron

Need 1 mg/Day

Pregnant 6 mg/Day

Absorb max 4 mg/Day

Excrete

↑ RDW

New

Any

Anemia

Symptoms

HCT

>30-35 ∅

25-30 Tired

20-25

<20

GI → ↑loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

Excrete

↑RDW

Hg

↓MCV

AnEmia
Symptoms
GI
↑loss
Iron
Need
1mg/Day
Pregnant 6mg/Day
Absorb max 4mg/Day
Excrete
Tired fatigue
Dyspnea
↑RDW
New
KAPLAN MEDICAL

AnEmia
Symptoms
HCT
>30-35
25-30
GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/Day
Absorb max 4mg/Day
KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

>30-3

25-3 Fatigue

20 Dyspnea

GI → ↑ Loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

…ITION

Chronic

Any RA

Cancer

ESRD

0000

↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
Chronic
Any RA
Cancer
ESRD
↓Fe
KAPLAN MEDICAL

KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
↓Fe
KAPLAN MEDICAL

GI
Need
↓Fe
KAPLAN MEDICAL

GI
loss
Iron
Need
1 mg/Day
Pregnant
Absorb max 4 mg/Day
Ferritin
Fe
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
Chronic
Any RA
ESRD
↓Fe
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 3-6mg/Day
Absorb max 4mg/Day
↓Ferritin
≤normal
↓Fe
↑TIBC
↓Fe
KAPLAN MEDICAL

GI → ↑loss

Iron

Need 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

↓ferritin

3 normal

↓Fe

↑TIBC

↑loss
Iron
Need
1 mg/Day
Pregnant 6 mg/Day
Absorb max 4 mg/Day
↓ferritin
Normal
↓Fe
↑TIBC
↓Fe
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
↑TIBC
↓Fe
KAPLAN MEDICAL

Need
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 3-6 mg/Day
Absorb max 4 mg/Day
↓ferritin
↓Fe
↑TIBC
KAPLAN MEDICAL

GI
↑loss
↓mcv
Iron
Need
1mg/Day
Absorb max 4mg/Day
Chronic
Any RA
Cancer
ESRD
↓Fe
↓TIBC
↓Fe
↓TIBC
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
↓MCV
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
KAPLAN MEDICAL

GI → ↑loss

Iron

Need

1 mg/Day

Pregnant 5 6 mg/Day

Absorb max 4 mg/Day

↓ferritin

1/3 Normal

↓Fe

↑TIBC

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5 6 mg/Day
Absorb max 4 mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
↑Ferri
↓Fe
↓TI
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Absorb max 4 mg
↓Fe
↑TIBC
KAPLAN MEDICAL

Need
KAPLAN MEDICAL

Need
Pregnant
Absorb
Normal
KAPLAN MEDICAL

Need
Absorb
normal
KAPLAN MEDICAL

Loss
Need
Iron
1 mg/Day
Absorb max
Normal
Fe
TIBC
KAPLAN MEDICAL

GI → ↑Loss

Iron

Need

1 mg/Day

Pregnant 3 6 mg/Day

Absorb max 4 mg/Day

↓Ferritin

1/3 Normal

↓Fe

→ ↑TIBC

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIBC

GI
↑loss
Iron
Need
1mg/Day
Pregnant 3-6 mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 6 mg/Day
Absorb max 4 mg/Day
Any
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
↑Fer
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Absorb max
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant
Absorb max
↓Ferritin
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5 6mg/Day
Absorb max 4mg/D
1/3 Normal
↓ferritin
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/Day
Absorb max 4mg/Day
↓ferritin
1/3 normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow!
KAPLAN MEDICAL

GI → ↑ loss

Iron

Need 1 mg/Day

Pregnant c̄ 6 mg/Day

Absorb max 4 mg/Day

↓ Ferritin

1/3 Normal

↓ Fe

→ ↑ TIBC

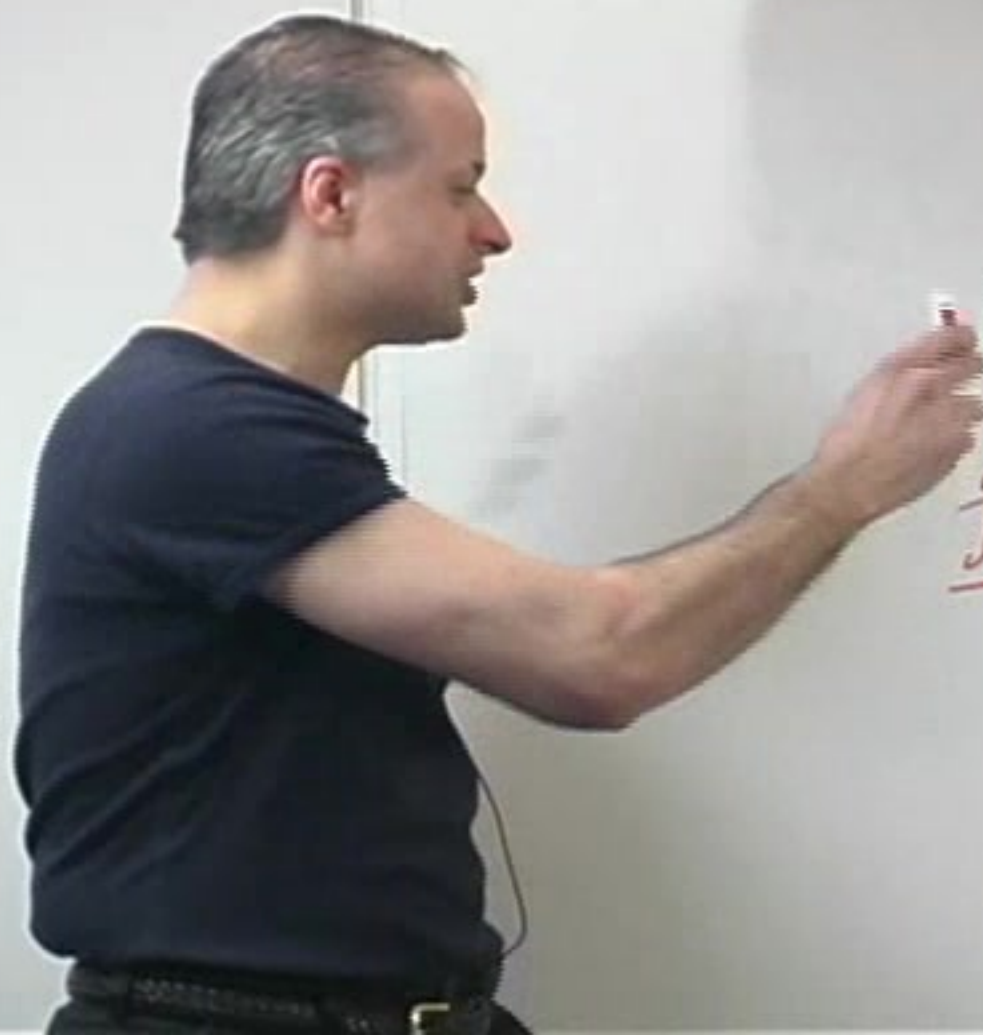
Marrow

GI → ↑loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
↑Ferri
↓F
↓TI
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
↓ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
Present
Absorb
↓MCV
Chronic
Any
Cancer
ESRD
↓Ferritin
↑Ferritin
↓Fe
Sideroblastic
Alcohol
Lead, INH
Fe
Normal
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/Da
Absorb max 4mg/D
↓ferritin
1/3 normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant
Absorb max 4mg/Day
Chronic
Any RA
Cancer
ESRD
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
↑Ferritin
↓Fe
↓TIBC
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/
Absorb max 4mg
↓ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
↓ferritin
1/3 normal
↓Fe
↑TIBC
Marrow
KAPLAN MEDICAL

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 5 6mg/Day

Absorb max 4mg/Day

↓ferritin

3 Normal

↓Fe

↑TIBC

Marrow

Replac

GI
↑loss
Iron
Need
1 mg/Day
Chronic
Any RA
Cancer
ESRD
↓mcv
↓Fe
↑TIBC
↑Ferritin
↓TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
absorb max 4mg/Day
↓ferritin
↓Fe
Any
KAPLAN MEDICAL

GI
↑ loss
Iron
Need
1 mg/Day
Pregnant 3-6 mg/Day
Absorb max 4 mg/Day
↓ Ferritin
1/3 Normal
↓ Fe
↑ TIBC
Marrow
Replace
Chronic
Any RA
Cancer
ESRD
↑ Ferritin
↓ Fe
↓ TIBC
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5 6mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5 6 mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Pregnant 5-6 mg/Day
Absorb max 4 mg/Day
↓ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 6 mg/Day
Absorb max 4mg/Day
↓ferritin
1/3 normal
↓Fe
↑TIBC
Iron
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓ferritin
↓Fe
↑TIBC
IM Iron
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1 mg/Day
Absorb max 4 mg/Day
↓ferritin
1/3 normal
↓Fe
IM Iron
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant
Absorb max
↓ferritin
1/3 normal
↓Fe
↓IM Iron
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI
Loss
Iron
Need
1 mg/Day
Absorb max
↓Fe
↑TIBC
I.M.
Iron
Marrow
Replace
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
1mg/Day
6mg/Day
4mg/Day
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
Sideroblastic
Alcohol
Lead, INH
↑Fe
KAPLAN MEDICAL

GI
↑loss
↓MCV
Chronic
Sideroblastic
Alcohol
↑Fe
↓Fe
KAPLAN MEDICAL

GI
↑loss
↓MCV
Iron
Need
Day
Abs
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
TIBC
Sideroblastic
Alcohol
Lead/INH
↑Fe
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
1mg/Day
max 4mg/Day
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
Sideroblastic
Alcohol
Lead, INH
↑Fe
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
Chronic
Any RA
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
Sideroblastic
Alcohol
Lead, INH
↑Fe
Prussian Blue
KAPLAN MEDICAL

↓MCV

GI → ↑loss

Need

Iron

Pregn

Absorb

↓fer

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIBC

Sideroblastic

Alcohol

Lead INH

↑Fe

Prussian Blue

GI → ↑loss

Iron

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

↓Ferritin

↓Fe

Chronic

Any RA

ESRD

↑Ferriti

↓Fe

↓TIB

GI → ↑loss

Iron

Need 1 mg/Day

Pregnant ~ 6 mg/Day

Absorb max 4 mg/Day

↓Ferritin

↓Fe

↑TIBC

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIB

GI → ↑loss

Iron

Need 1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

↓Ferritin

↓Fe

TIBC

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIB

↓MCV
Need
Iron
↓Fe
TIBC
↓Fe
↓TIBC
KAPLAN MEDICAL

GI
↑loss
Iron
Need
1mg/Day
Pregnant 5-6 mg/Day
Absorb max 4mg/Day
↓Ferritin
1/3 Normal
↓Fe
↑TIBC
Marrow
Replace
KAPLAN MEDICAL

GI → ↑loss

Iron

Need

1 mg/Day

Pregnant 3-6 mg/Day

Absorb max 4 mg/Day

↓Ferritin

↓Fe

↑TIBC

Marrow

Replace

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIBC

↓MCV

GI → ↑ loss

Need

Iron

6 mg/Day

4 mg/Day

↓Fe

Chronic

Any RA

Cancer

ESRD

↑ Ferritin

↓Fe

↓TIBC

Sideroblastic

Alcohol

Lead, INH

↑ Fe

Prussian Blue

Pyridoxine

ALA

↓ mcv

Chronic

Any RA

ESRD

↑ Ferritin

Sideroblastic

↑ Fe

Thalesemia

Trait

↓↓↓ mcv

Liver

Heart

Transfus

Packed

KAPLAN MEDICAL

↓MCV

Chronic

Any RA
Cancer
ESRD

Ferritin
↓Fe
↓TIBC

Sideroblastic

Alc
Lead

Thalassemia
Trait

KAPLAN MEDICAL

↓MCV

Chronic

Any RA
Cancer
ESRD

↑Ferritin

Sideroblastic

Fe

...ssian Blue

...oxine

Thalassemia

Trait

- Normal Iron Stud...

↓ MCV

Sideroblastic

Thalassemia Trait

- Normal Iron Studies

Electrophoresis

↓ MCV

Chronic

Sideroblastic

~~Alcohol~~
~~Lead~~

* ↑ Fe

* Prussian Blue

Pyridoxine
ALA

Thalassemia

Trait

- Normal Iron Studies

Electrophoresis

α

β

↓ MCV

↑ loss

Iron

1 mg/Day

max 4 mg/Day

↓ Fe

Chronic

Sideroblastic

~~Alcohol~~
~~Lead~~

↑ Fe

Prussian Blue

Pyridoxine
ALA

Thalasemi

Trait

Normal Iro

Electro

↓MCV

Chronic

Sideroblastic

Alcohol
Lead poisoning

↑Fe

Prussian Blue

Pyridoxine

Thalassemia Trait

Normal Iron Studies

Electrophoresis

↓MCV

GI — ↑loss

Need — Iron — 1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

↓Ferritin

normal

↓Fe

↑TIBC

Chronic

Any RA

Cancer

ESRD

↑Ferritin

↓Fe

↓TIBC

↓ MCV

GI → ↑ loss

Iron

Need

1 mg/Day

Pregnant

Absorb max

↓ Ferritin

1/3 Normal

↓ Fe

I.M. Iron

Marrow

Chronic

Sideroblastic

↑ Fe

Prussian Blue

Pyridoxine

ALA

↓MCV

Chronic

Any RA

Cancer

ESRD

Sideroblastic

Fe

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

α

A

β

↓mcv
GI
↑loss
Iron
Chronic
Any RA
Cancer
ESRD
↑ Ferritin
↓Fe
↓TIB
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
1mg/Day
max 4mg/Day
Chronic
Any
Cancer
ESRD
↑Ferritin
↓Fe
↓TIBC
↑Fe
↑TIBC
Marrow
Replace
Pyridoxine
ALA
KAPLAN MEDICAL

↓MCV

↑loss

Iron

1mg/Day

max 4mg/Day

Ferritin

↓Fe

↑TIBC

Marrow

Replace

Chron

↑Ferri

Sideroblastic

Alcohol

Lead

↑Fe

Trait

Normal

Elec

A=2α

↓MCV

Sideroblastic

Alcohol

Lead

↑Fe

Blue

Thalassemia

Trait

Electro

A = 2α + 2

↓MCV

loss

Iron

mg/Day

6 mg/Day

max 4mg/Day

Sideroblastic

Alcohol

Lead

↑Fe

Prussian Blue

Pyridoxine

ALA

Thalassemia

Trait

Normal Iron S

Electropho

α

$A = 2\alpha + 2$

↓MCV

Sideroblastic

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

α β

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha +$

↓MCV

Chronic

Sideroblastic

Thalassemia's

Iron Studies

↑Ferritin

↓Fe

↓TIBC

Pyridoxine

ALA

A

B

β

Sideroblastic

Alcohol / Lead (crossed out)

↑ Fe

Prussian Blue

Pyridoxine

ALA

Thalassemia

Trait

Normal Iron Stud

Electrophores

α

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2$ Del

$F = 2\alpha + 2$ Ga

Hg

Hg / HCT

Thalasemia
Trait

Normal Iron Studies

Electrophoresis

α β

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2$ [illegible]

$F = 2\alpha + 2$ gamma

Hg
HCT

Thalesemia
Trait
Normal Iron Studies
Electrophoresis

α β

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2$ Delta

$F = 2\alpha + 2$ Gamma

Mg / HCT

Thalesemia Trait

Normal Iron Studies

Electrophoresis

α β

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2$

$F = 2\alpha + 2$ gamma

Hg / HCT

Thalasemia Trait

Normal Iron Studies

Electrophoresis

α β

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2\,Delta$

$F = 2\alpha + 2\,Gamma$

Thalesemia
Trait
Normal Iron Studies
Electrophoresis
α
B
A=2α + 2B ↓A
A2=2α + 2 Delta
F=2α + 2 Gamma
KAPLAN MEDICAL

Thalesemia
Trait
Hg
HCT
Normal Iron Studies
Electrophoresis
A=2α + 2B ↓A
A2=2α + 2 Delta ↑
F=2α + 2 Gamma
KAPLAN MEDICAL

Thalassemia Trait

Hg

HCT

Normal Iron Studies

Electrophoresis

α β

$A = 2\alpha + 2\beta$ ↓A

$A_2 = 2\alpha + 2$ Delta ↑A_2

$F = 2\alpha + 2$ Gamma ↑F

↓MCV

Sideroblastic

Alcohol

Lead

↑Fe

ALA

↓A ↑A_2 ↑F

Thalesemia

Trait

Normal Iron Studi

Electrophoresis

↓A = 2α + 2β

↓A_2 = 2α + 2 Delta ↑

↓F = 2α + 2 Gamma ↑

↓ MCV

Sideroblastic

~~Alcohol~~

~~Lead~~

↓A ↑A_2 ↑F = Hgb, HCT

Thalasemia Trait

Normal Iron Studies

Electrophoresis

α β

↓A = 2α + 2β ↓A

↓A_2 = 2α + 2 Delta ↑A_2

↓F = 2α + 2 Gamma ↑F

↓MCV

Sideroblastic

1
2 α
3
4

2B ↓A

2α + 2 Delta ↑A_2

↓F = 2α + 2 Gamma ↑F

KAPLAN MEDICAL

↓MCV
KAPLAN MEDICAL

↓MCV

Sideroblastic

Alcoho

Lead

2 → α
3
4

electrophoresis

↓A = 2α + 2β

↓A_2 = 2α + 2 Delta ↑

↓F = 2α + 2 Gamma ↑

↓MCV

Chronic

Sideroblastic

Lead

2 → α

3

4

$\downarrow A = 2\alpha + 2\beta$

$\downarrow A_2 = 2\alpha + 2$ Delta ↑

$\downarrow F = 2\alpha + 2$ Gamma ↑

↓MCV

Chronic

Sideroblastic

Silent

2 → α
3
4

↓A = 2α + 2β ↓A

↓A_2 = 2α + 2 Delta ↑A_2

↓F = 2α + 2 Gamma ↑F

↓MCV

Chronic

Sideroblastic

↓MCV
GI
↑loss
Iron
Need
1mg/Day
Chronic
↓Fe
↑Ferritin
↓Fe
↓TIB
KAPLAN MEDICAL

GI → ↑loss

Iron

Need

Absorb

↓Ferritin

Normal

↓MCV

Chronic

Any

Cancer

ESRD

↑Ferritin

↓Fe

Sideroblastic

Alcohol

Lead

Silent

Mild

Moderate

Dead

↓A=

↓A_2=

↓F=

GI
↑loss
Iron
Need
1mg/Day
Absorb max
Chronic
Any RA
ESRD
↓Fe
Marrow
Replace
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
1mg/Day
Absorb max 4mg/Day
↓Ferritin
↓Fe
↑TIBC
Chronic
ESRD
↑Ferritin
↓Fe
↓TIBC
Sideroblastic
KAPLAN MEDICAL

↓MCV
GI
↑loss
Iron
Need
Pregnant
Absorb max
↓Ferritin
Chronic
Any
Cancer
ESRD
Ferritin
Sideroblastic
Alcohol
Lead
Silent
Mild 2
Moderate 3
Dead
↓A=2α +
↓A2=2α +
↓F=2α +
KAPLAN MEDICAL

GI
↑loss
Iron
Need
Absorb max
↓Ferritin
↓Fe
I.M. Iron
↓MCV
Chronic
Sideroblastic
Silent
mild
moderate
KAPLAN MEDICAL

GI → ↑loss

Need Iron

1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

↓Ferritin

1/3 Normal

↓Fe

I.M. Iron

↓MCV

Sideroblastic

Alcohol

Lead

Silent

mild

Moderate

Dead

↓A=2

↓A_2=2

↓F=2

↓MCV
Sideroblastic
KAPLAN MEDICAL

78 ♂ Office

78 ♂ Office

Tingling/Numbness,
of Hands/Feet

78 ♂ Office

Tingling/Numbness of Hands/Feet

Alcoholic

78 ♂ Office
Tingling/Numbness,
of Hands/Feet
Alcoholic
HCT 30
MCV

HCT:
MCV:
KAPLAN MEDICAL

78 ♂ Office

Tingling/Numbness
of Hands/Feet

Alcoholic

HCT: 30

MCV: 110

Smear:

B12

78 ♂

HCT: 30

MCV: 110

Smear:

B12

78 ♂ Office
Tingling/Numbness of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypers

B12

78

B12

78

Tinglin

of +

Alco

HCT

MCV

Sme

B12

B12

78 ♂ Office

Tingling/Numbne

of Hands/Fee

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypersegment

B12

78 ♂

Tingling/Num

of Hands

Alcoholi

HCT: 3

MCV: 11

Smear:

Hyperse

B12
78 ♂ Offic
Tingling/Numbn
of Hands/fe
Alcoholic
HCT: 30
MCV: 110
Smear:
Hyperseg
KAPLAN MEDICAL

B12

Neuro:

78 ♂ Offi

Tingling/Numb

of Hands/F

Alcoholic

HCT: 30

MCV: 110

Smear:

Hyperseg

B12

Neuro:
Peripheral

78 ♂
Tingling/
of + la
Alcoh
HCT:
MCV:
Smear
Hyp

KAPLAN MEDICAL

B12

78 ♂

Neuro:
⇒ Peripheral

Tinsling/

Alcoho

HCT:

MCV:

Smear:

Hype

KAPLAN MEDICAL

B12
Neuro:
⇒ Peripheral
Alcoholic
HCT: 30
MCV: 110
Smear:
KAPLAN MEDICAL

B12

Neuro:
=> Peripheral

78
Tinglin
of + l
Alco
HCT
MCV
Sme

B12

Neuro:
⇒ Peripheral

78 ♂

Tingling/N

of Hand

Alcohol

HCT: 3

MCV: 1

Smear:

Hyper

B12

Neuro:
⇒ Peripheral

B12

78 ♂ Office

Folat

Neuro:
Peripheral

Tingling/Numbness,
of Hands/Feet

Alcoholic

T: 30

M V: 110

ear:
Hypersegmented

No Neur

B12

78 ♂ Office

Tingling/Numbness, of Hands/Feet

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypersegmented

>4 Average

Neuro:

=> Peripheral

No

B12

78 ♂ office

Folate

Tingling/numbness of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypersegmented

>4 Average

No Neuro

Level

...ripheral

B12

78 ♂ Office

Folate

Neuro:

Love

Hands/feet

30

110

No Neuro

Love

Replace

B12

Neuro:
= Peripheral
Level

78 ♂ Office
Tingling/Numbness, of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented
>4 Average

No
=
Lo
Re

B12

78 ♂ Offic

Tingling/Numbn
of Hands/Fe

Alcoholic

HCT: 30
MCV: 110

Smear:
Hypersegme
>4

Peripheral

Level

B12

Neuro:
⇒ Peripheral
Level

78 ♂ Offic
Tingling/Numbne
of Hands/Fe
Alcoholic
HCT: 30
MCV: 110

B12

78 ♂ Office

Tingling/numbness of hands/feet

lcoholic

HCT: 30

Neuro:

Lower

Folate ↓Intake

Sickle cell

No Neuro

Lower

Repla

B12

78 ♂ Office

Tingling/Numbness, of Hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypersegmented

>4 Average

Neuro:

=> Peripheral

Level

Fol

No Ne

Level

Replac

KAPLAN MEDICAL

B12
78 ♂ Office
Tingling/Numbness, of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented
>4 Average
Folate
No Neuro
Level
Replace
KAPLAN MEDICAL

B12

Neuro:
→ Peripheral

Level

78 ♂ Office
Tingling/Numbness, of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented
>4 Average

Folate
No Neuro
Level
Replace

B12 78 ♂ Office Folate

Neuro:

Tingling/Numbness

Hands/Feet

No Neuro

coholic

CT: 30

CV: 110

B12
78 ♂ Office
Tingling/Numbness
of Hands/feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmente
>4
Neuro:
⇒ Peripheral
Level
KAPLAN MEDICAL

B12
78 ♂ Office
Tingling/Numbness
of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Neuro:
⇒ Peripheral
Level
↑ Methylmalonic
Acid
KAPLAN MEDICAL

B12
78 ♂ Officer
Tingling/Numbness
of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Neuro:
⇒ Peripheral
Level
↑ Methylmalonic
Acid
Level
KAPLAN MEDICAL

B12
78 ♂ O
Neuro:
=> Peripheral
Level
Methylmalonic
Acid
level
Alcohol
HCT: 3
MCV: 1
Smear:
KAPLAN MEDICAL

B12

Neuro:
⇒ Peripheral

Level

↑ Meth... onic
acid
level

78 ♂ Offic

Tingling/Numbn
of hands/fe

Alcoholic

HCT: 30

MCV: 110

Smear:
Hypersegm
>4

B12

Neuro:
⇒ Peripheral
Level
↑ Methylmalonic Acid level

78 ♂
Tinglino
of + la
Alcoh
HCT:
MCV:
Smea
hy

B12

Neuro:

Peripheral

↑↑ Methyl

Level

HCT:

MCV:

Smear:

B12

Neuro:
⇒ Peripheral
Level
↑↑ Methylmalonic Acid Level
Replace
Schilling's

78 ♂ Office
Tingling/Numbness, of Hands/Feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented >4 Average

B12

78 ♂ Office
Tingling/Numbness, of Hands/feet
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented
>4 Average

ripheral

level

malonic
Acid
level

ANTI INTRINSIC FACTOR

B12

Neuro:
→ Peripheral

Level

↑↑ Methylmalonic
Acid
Level

Replace

ANTI INTRINSIC Facto
ANTI Parietal Cells

78 ♂

Tingling/Numb

of Hands/

Alcoholic

HCT: 30

MCV: 110

Smear:

Hyperseg
>4

B12
78
Peripheral
Level
Alcoholic
HCT: 30
MCV: 110
Smear:
Parietal Cells
KAPLAN MEDICAL

Hemolysis:

Hemolysis:
KAPLAN MEDICAL

Hemolysis:

Hemolysis:
Acute
KAPLAN MEDICAL

Acuty
Anemi
KAPLAN MEDICAL

Acute Anemia — Loss ⊃ Hemolysis

Acute Anemia – GI Loss = Hemol

Hemolysis:

· Acute

→ Acute Anemia – GI Loss = Hemol

Hemolysis:

· Acute

MCV Normal or Slight

KAPLAN MEDICAL

Anemia
Loss
Acute
KAPLAN MEDICAL

Acute Anemia
GI Loss
Hemolysis:
Acute
MCV Normal or slightly ↑ ↑
KAPLAN MEDICAL

→ Acute Anemia — GI Loss

↑ Reticulo

Hemolysis:

→ Acute Anemia — GI Loss

↑ Reticulocyte

Hemolysis:

· Acute

MCV

or

KAPLAN MEDICAL

Acute Anemia — GI Loss

↑ Reticulocyte,
↑ LDH
↑ Bilirubin

Hemolysis

Acute

Normal
or Slight
↑ ↑

KAPLAN MEDICAL

Hemolysis

↑ Reticulocytes

↑ LDH

↑ Bilirubin

↓ Haptoglobin

Acute

MCV Normal or slightly ↑ ↑

↑ Reticulocytes
↑ LDH
↑ Bilirubin
↓ Haptoglobin
Intravascular
KAPLAN MEDICAL

Hemolysis

· Acute

MCV Normal
or sl ↑

cytes

Hemolysis:

bin

Acute

bin

↑ Reticulocyte
↑ LDH
↑ Bilirubin
↓ Haptoglobin
INTRAVascular
KAPLAN MEDICAL

KAPLAN MEDICAL

Hemlysi

Acute

iculocytes

Bilrubin

Haptoglbin

scular

↑ Reticulocytes
↑ LDH
↑ Bilirubin
↓ Haptoglobin
Hemolysis
Acute
MCV Normal or slightly ↑
Intravascular
KAPLAN MEDICAL

↑ Reticulocytes
↑ LDH
↑ Bilirubin
↓ Haptoglobin
INTRAVASCULAR
KAPLAN MEDICAL

Hemolysis

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

Intravascular

Urine Dark

Acute

MCV Normal or Slightly ↑

KAPLAN MEDICAL

↑ Reticulocytes

Hemolysis — ↑ LDH

↑ Bilirubin

↓ Haptoglobin

Acute

MCV Normal

↑ ↑

Intravascular

Urine Dark

Hg

KAPLAN MEDICAL

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

Hemolysis

Acute

MCV Normal or slightly ↑ ↑

Intravascular

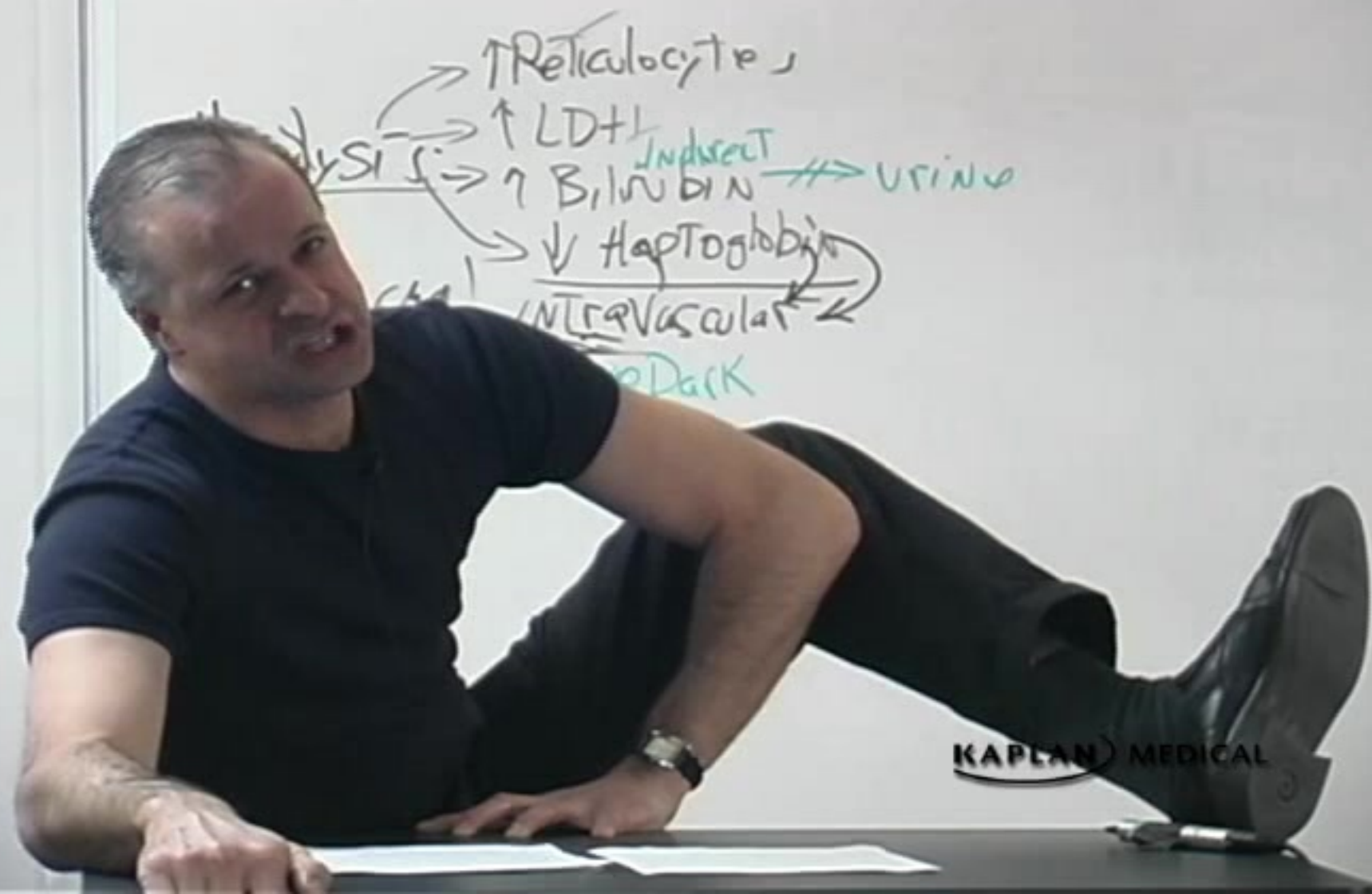
urine Dark

Hg

KAPLAN MEDICAL

↑ Reticulocyte
↑ LDH
↑ Bili
↓ Haemoglobin
Intravascular
urine
KAPLAN MEDICAL

↑ LDH
KAPLAN MEDICAL

↑ Reticulocyte
↑ LDH
Indirect
↑ Bilirubin
urine
↓ Haptoglobin
intravascular
Dark
KAPLAN MEDICAL

↑ Reticulocyte

↑ LDH

Indirect

↑ Bilirubin → urine

↓ Haptoglobin

Intravascular

urine Dark

Hg

Acute

Normal

or slightly

↑ ↑

Hemolysis → ↑ LDH

→ ↑ Bilirubin (Indirect)

→ ↓ Haptoglobin

Acute

Intravascular

Urine Dark

→ Hg → Renal Failure

ATN

KAPLAN MEDICAL

Hemolysis

↑ Reticulocyte

↑ LDH

↑ Bilirubin (Indirect) → urine

↓ Haptoglobin

Acute

Normal

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

Hemolysis

↑ Reticulocytes

↑ LDH

↑ Bilirubin (Indirect) —//→ urine

↓ Haptoglobin

Intravascular

urine Dark

→ Hg → Renal Failure ATN

Acute

MCV Normal or slightly ↑ ↑

Hemolysis

↑ Reticulocyte

↑ LDH

↑ Bilirubin Indirect → urine

↓ Haptoglobin

Intravascular

Urine Dark

→ Hg → Renal Failure

ATN

Acute

MCV Normal or slightly ↑ ↑

↑ Reticulocyte
↑ LDH
↑ Bilirubin Indirect → urine
↓ Haptoglobin

Hemolysis

Acute

MCV Normal or slightly ↑ ↑

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

↑ Reticulocyte
↑ LDH
Indirect
↑ Bilirubin
urine
↓ Haptoglobin
intravascular
urine Dark
Hg → Renal
ATN
KAPLAN MEDICAL

↑ Reticulocytes

↑ LDH

Hemolysis → ↑ Bilirubin (Indirect) → urine

↓ Haptoglobin

Acute

MCV

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

↑Reticulocytes
↑LDH
Indirect
↑ Bilirubin
urine
Haptoglobin
Vascular
Dark
Renal
Failure
ATN
KAPLAN MEDICAL

Hemolysi

Acute

Indirect

KAPLAN MEDICAL

↑ Reticulocyte

↑ LDH

Hemolysis

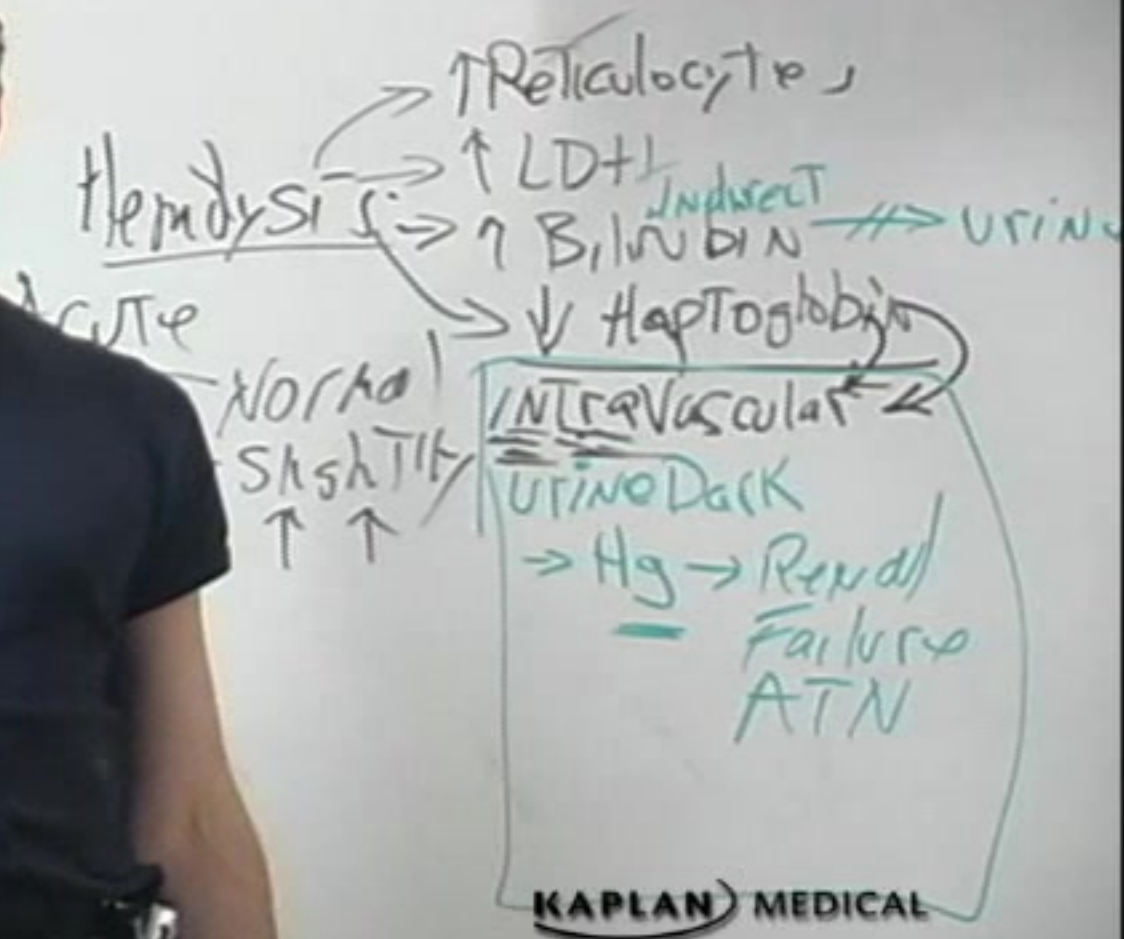
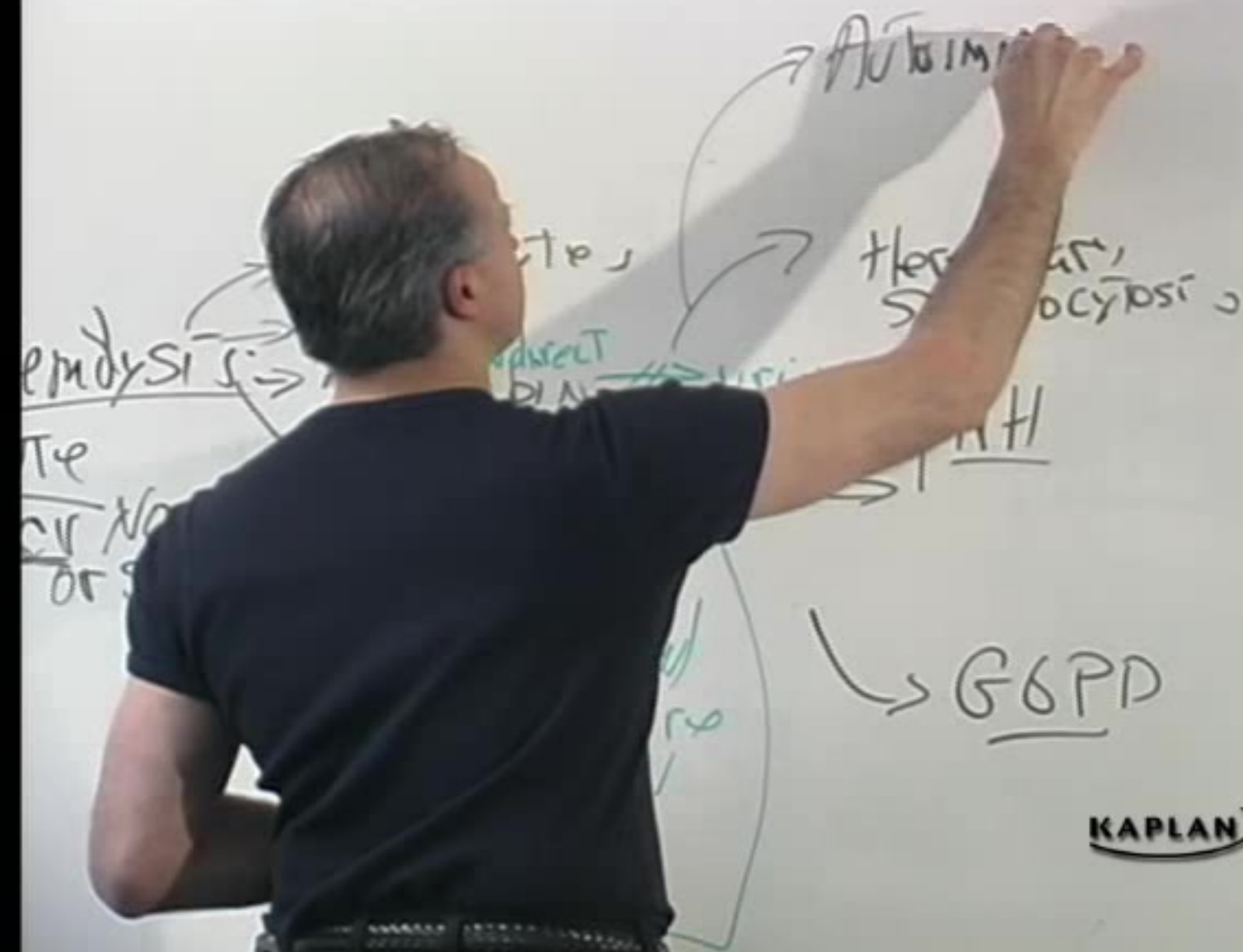
Indirect

↑ Bilirubin

↓ Haptoglobin

Acute

Normal

Slightly

↑ ↑

Intravascular

Urine Dark

→ Hg → Renal Failure

ATN

↑ Reticulocyte

↑ LDH

↑ Bilirubin Indirect -/-> urine

↓ Haptoglobin

Hemolysis

Acute

Norma

SRShTIF

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

urine
PNH
G6PD
KAPLAN MEDICAL

G6PD

Autoimmune

...ticulocyte,
...DH↑
...Indirect
...ilirubin → urine
...Haptoglobin

...ravascular
...rine Dark
...Hg → Renal
Failure
ATN

...osi,

Autoimmune

...iculocytes

indirect
bilirubin → urine

Haptoglobin

...avascular

...ne Dark

Hg → Renal
Failure
ATN

G6PD

Autoimmune

Hereditary spherocytosis

PNH

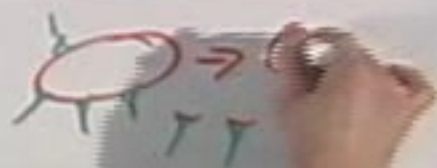
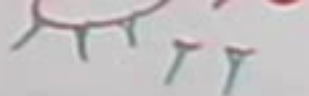
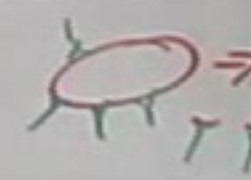
G6PD

...ticulocyte
LDH
Indirect
Bilirubin → urine
Haptoglobin
...scular

Renal
Failure
ATN

Autoimmune

Hereditary spherocytosis

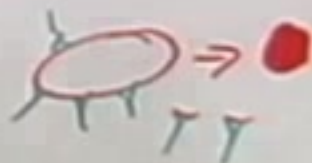
PNH

G6PD

urine

KAPLAN MEDICAL

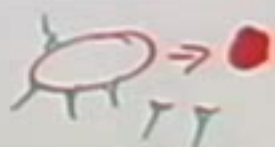
Autoimmune

Sickle Cell

Hereditar
spherocy

PNH

Autoimmune

Sickle

pherocy

Renal
Failure
ATN

Autoimmune

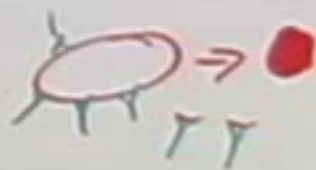
Hereditary Spherocytosis

urine

PNH

G6PD

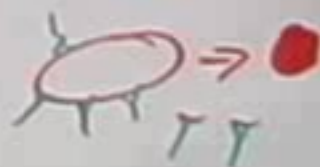
Sickle Cell

48 ♂ ED Pain

Chest/Back

Autoimmune
Hereditary Spheroc
PNH
Sickle Cell
98⁶
99%
48 ♂ ED Pain
Chest/Back/Thigh
KAPLAN MEDICAL

Autoimmune

Sickle

98.6 / 99%
Saturation

Chest /

urine

failure

Autoimmune

↑Reticulocytes

↑LDH

Indirect

Urine

KAPLAN MEDICAL

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

MCV

urine

PNH

G6PD

Autoimmune

Hereditary spherocytosis

↑ Reticulo

↑ LDH

↑ Bilirubin

PNH

Autoimmune

Hereditary spherocytosis

Hemolysis

↑ Ret

↑ LD

↑ Bili

urine

PNH

Acute

MCV Normal or sligh

↑

G6PD

KAPLAN MEDICAL

Autoimmune

↑ Retic

↑ LD

Hemolysis

↑ Bili

urine

Hereditary Spherocytosis

PNH

· Acute

MCV Normal or slight

↑ ↑

G6PD

Autoimmune

urine

Sickle Ce

98.6

99%

Saturation

48 ♂ ED

Chest / Back

- Stroke
- Ulcers
- Osteo

Autoimmune

Hereditary spherocytosis

Reticulocytes

LDH

Indirect

Bilirubin → urine

Acute

PNH

G6PD

Autoimmune
Sickle Cell
99%
Saturation
- Stones
KAPLAN MEDICAL

Autoimmune

↑ Reticulo

Hemolysis

↑ LDH

↑ Bili

urine

Hereditary spherocytosis

Acute

MCV No

or

PNH

G6PD

Autoimmune

↑ Reticulocyt
↑ LDH
↑ Bilirubin
↓ H

Hereditary
Spherocytosis

PNH

G6PD

98%
99%
Saturation

- Stones
- Ulcers
- Osteo
- Aseptic Necrosis

KAPLAN MEDICAL

Autoimmune

Hemolysis

↑ Reticulocy

↑ LDH

↑ Bilirubi

↓ Haptoglob

Hereditary spherocytosis

Acute

MCV Normal or slightly ↑ ↑

Intravascu

Autoimmune

↑ Reticulocy

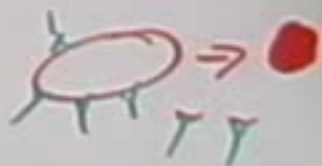
Hemolysis

↑ LDH

↑ Bilirubin

↓ Hapto

Hereditary spherocytosis

PNH

Acute

MCV Normal or slightly ↑ ↑

Autoimmune

↑ Reticulocytes

↑ LDH

↑ Bilirubin

Indirect

Hereditary spherocytosis

PNH

G6PD

Sickle Cell

98.6

99%

Saturation

48 ♂ ED Pain

Chest / Back / Thigh

- Stones
- Ulcers
- Osteo
- Aseptic Necrosis

Dx:

ereditary spherocytosi

PNH

G6

KAPLAN MEDICAL

Autoimmune

Hereditary Spherocytosis

PNH

G6PD

Sickle Cell

48 ♂ ED Pain

Chest / Back / Thigh

Dx:

Autoimmune

Sick

98°

99%

480

Chest

Saturation

Dx:

eticulocyte

LDH

Indirect Bilirubin → urine

↓ Haptoglobin

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

PNH

imMune

rechtar,
pherocytosis

PNH

G6PD

98[6]

99%

turation

ers

teo

Sickle Cell

48 ♂ ED Pain
Chest / Back / Thighs

Dx: Smear Sickled Cells

Autoimmune

Hereditary spherocytosis

Hemolysis

↑ Retic...

↑ LDH

↑ Bili... → urine

PNH

Acute

MCV Normal or slight... ↑

G6PD

Sickle Cell
98°
99%
48 ♂ ED Pain
Chest/Back/Thighs
Dx: Smear Sickled Cells
Fluids/O_2
Pain meds
KAPLAN MEDICAL

Autoimmune

Hereditary Spherocytosis

PNH

G6

urine

Sickle Cel

98°

99%

Saturation

48 o ED Pa

Chest/Back

- Strokes
- Ulcers
- Osteo

Dx: Smear

Fluids/O_2

KAPLAN MEDICAL

Autoimmune

Hemolysis

↑ Reticulocytes

↑ LDH

↑ Bilirubin (Indirect)

↓ Haptoglobin

Acute

MCV Normal or Slightly ↑

Intravascular

Urinary

MEDICAL

Autoimmune

Hereditary spherocytosis

Hemolysis

Indirect

Urine

PNH

G6PD

KAPLAN MEDICAL

KAPLAN MEDICAL

Autoimmune

↑ Reticulocyte

Hemolysis

↑ LDH

↑ Bilirubin (Indirect)

↓ Haptoglobin

Acute

MCV Normal or Slightly ↑

Hereditary Spherocytosis

PNH

Autoimmune

Hereditary Spherocytosis

urine

PNH

Sickle Cell

98°

99%

48 ♂ ED

Chest/Back

Dx: Smear

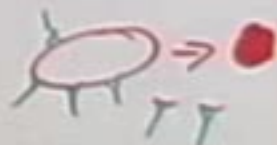
Fluids/O2

Antibiotics →

KAPLAN MEDICAL

Sickle Cell

48 ♂ ED Pain
Chest/Back/Thighs

98.6
99% Saturation

Stones
Ulcers
Osteo
Aseptic necrosis

Dx: Smear Sickled Cells

Fluids/O_2 | Pain meds

Antibiotics → Fever > 100.3

3rd HD

HCT

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

urine

PNH

G6PD

Autoimmune

Hereditary spherocytosis

Hemolysis

↑ Ret

↑ LD

↑ B

urine

PNH

- Acute

MCV Normal or Sh

G6PD

Autoimmune

↑ Reticulo

Hereditary spherocytosis

Hemolysis

↑ LDH

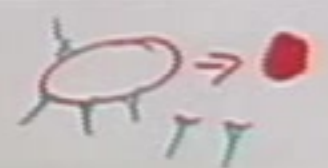
↑ Bilirub

urine

PNH

Acute

MCV Normal or slightly ↑

SPD

Sickle Cell

48 ♂ ED Pain

Chest/Back/Thighs

98%
99%
Saturation

Dx: Smear Sickled Cells

Fluids/O_2 | Pain meds

Antibiotics → Fever > 100.3

3rd HD

HCT 32 → 25

Parvovirus B19

PCR

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

urine

PNH

G6PD

KAPLAN MEDICAL

Autoimmune

Hereditary spherocytosis

Hemolysis → ↑ Reti
→ ↑ LD
→ ↑ Bi
→ urine

PNH

· Acute
MCV Norm
or Sh
↑

G6PD

Autoimmune

Hereditary spherocytosis

Hemolysis → ↑ Re...
→ ↑ LD...
→ ↑ Bi...

urine

PNH

G6PD

Acute

MCV Norm...
or Sh...

KAPLAN MEDICAL

Autoimmune

Hereditary spherocytosis

Hemolysis → ↑Ret...
→ ↑LD...
→ ↑Bi...

→ urine

PNH

Acute
MCV Norm...
or Sh...

G6PD

KAPLAN MEDICAL

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

MCV

Direct

urine

PNH

G6PD

Sickle Cell

98°

99%

48 ♂ ED Pain

Back / thigh

HD

HCT 32 -> 25

Parvovirus B19

CR

IgM

Sickle Cell
48 ♂ ED Pain
Chest / Back / Thigh
Visual
Parvovirus B19
IgM
KAPLAN MEDICAL

toimmune

Sickle Cell

48 ♂ ED Pain

Chest / Back / thigh

Visual

CNS

erediTary spherocytosis

PNH

G6PD

Parvovirus B19

PCR

IgM

Sickle Cell

48 ♂ ED Pain

Chest / Back / thigh

Visual

CNS / CVA

3rd

32 → 25

Parvovirus B19

PCR

IgM

PNH

G6PD

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

MCV

urine

PNH

G6PD

Sickle Cell

48 ♂ ED Pain

Chest / Back / Thigh

Visual

CNS / CVA

Priapism

HCT 32 → 22

Parvovirus B19

PCR

IgM

Autoimmune

Hereditary spherocytosis

Hemolysis → ↑ Retic

→ ↑ LDH

→ ↑ Bili

→ urine

PNH

· Acute

MCV Norm

KAPLAN MEDICAL

Autoimmune

Hereditary spherocytosis

PNH

G6PD

Sickle Cell

48 ♂ ED Pain

Chest / Back / thigh

Visual

CNS / CVA

Priapism

Exchange transfusion

IgM

PCR

Autoimmune

Hemolysis

↑ LDH

↑ Bili

Acute

MCV Normo

Hereditary Spherocytosis

PNH

G6PD

Autoimmune

Reticulocytes

LDH

Indirect

Bilirubin

↓ Haptoglobin

Hydroxyurea

Treat

* Normal Smear
* Normal CBC

Only Renal

Isosthenuria

Autoimmune

Hereditary spherocytosis

PNH

G6PD

Hemolysis

Acute

MCV Normal

urine

Autoimmune

Hereditary spherocytosis

Hemolysis

Acute

urine

PNH

G6PD

Autimmune

↑ Reticulocyte
↑ LDH
↑ Bilirubin Indirect
↓ Hapt

emolysis

Hereditary Spherocytosis

PNH

SPD

Hydroxyu
Prevent

Trait
• Normal Smear
• Normal CBC
Only Renal
Isosthenuria

Autoimmune
Sickle Cell
48 ED Pain
Chest / Back / thigh
Visual
CNS
CVA
Priapism
SS → AS
3rd HD
HCT 32 → 25
Parvovirus B19
PCR
IgM
Urine
Normal Sweat
Normal CBC
Only Renal
KAPLAN MEDICAL

Autoimmune

Hereditary Spherocytosis

Sickle Cell

48° ED Pain

Chest / Back

Visual

CNS / CVA

Priapism

SS → AS

HD

HCT 30 → 25

Parvovirus

PCR

IgM

Renal Failure ATN

Autoimmune

Coombs ⊕

Sickl

48 0

Chest

Visua

CNS

Priap

SS

HD ↓

HCT 30 →

Parvo

PCR

ulocyte,

Indirect

Haptoglobin

Vascular

Dark

Hg → Ren

Fai

AT

Autoimmune

Coombs ⊕

Hereditary spherocytosis

Sick

Chest

HD

HCT

Parvo

PCR

Autoimmune

Coombs ⊕

Hereditary spherocytosis

G6PD

HD

HCT

Autoimmune
Coombs ⊕
Hereditary spherocytosis
urine
PNH
G6PD
KAPLAN MEDICAL

Autoimmune

Coombs ⊕

Hereditary Spherocytosis

Osmotic Fragility

PNH

G6PD

Indirect bilirubin → Urine

Haptoglobin

Dark

Renal Failure ATN

Autoimmune

SLE

Coombs ⊕

Osmotic

Fragility

iculocyte

Indirect

Bilirubin → uri

pherocytosis

PNH

ark

→ Renal

Failure

ATN

G6PD

SLE

CLL RA

Hereditary

PNH

urine

Haptoglobin

Acute

MCV

HD

Autoimmune

CLL RA

Hereditary spherocytosis

↑Reticulocytes

↑LDH

→ urine

PNH

Haptoglobin

Intravascular

Urine Dark

→ Hg → Renal Failure ATN

G6PD

HD

Autoimmune

SLE | Penicillin

CLL RA | Qui

Coombs +

Heredita

Sphe osis

Osmotic

Fragility

Urine

G6PD

HD

SLE

methyldopa

Spherocytosis

Reticulocyte

↑ LDH

Indirect

Dark

→ Renal Failure ATN

PNH

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidin
methyldopa

Coombs ⊕

Hereditary spherocytosis

↑ Reticulocyte
↑ LDH
indirect
Bilirubin → urine

PNH

G6PD

Renal
failure
ATN

KAPLAN MEDICAL

HD
Autoimmune
SLE
CLL
RA
Coombs +
Steroid
Sickle Cell
ED Pain
Chest / Back
Visual
CNS / CVA
Priapism
SS → AS
Osmotic
Fragility
Urine
PNH
HD
HCT 32 → 25
PCR
KAPLAN MEDICAL

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidin
Methyldopa

Hereditary
Spherocytosi

Hemolysis

Acute

urine

PNH

G6PD

HD

Autoimmune

SLE | Penicillin
CLL RA | Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

Hereditary
Spherocytosis

Osmotic
Fragility

urine

PNH

G6PD

HD

Autoimmune

SLE

RA

Penicillin

Quinidine

Methyldopa

Coombs +

↑ Reticulocytes

↑ LDH

↑ Bilirubin

Indirect

↓ Hapt

Hereditary

Spherocytosis

Osmotic

Fragility

PNH

G6PD

HD → Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

↑ Reticulocyt
↑ LDH
↑ Bilirubin indirect
↓ Hapt

Hereditary
Spherocytosis

Osmotic
Fragility

PNH

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis

Recurrent

Indirect
Bilirubin → Urine

Haptoglobin

Acute

MCV

Failure
ATN

G6PD

Autoimmune

SLE

↑ Reticulocytes

↑ LDH

↑ Bilirubin

↓ Haptoglobin

Intravascular

Hereditary Spherocytosis

Recurrent

PNH

G6PD

HD

Autoimmune

SLE
CLL

Penicillin
Quinidine
Methyldopa

Coombs

Hereditary
Spherocytosis

Recurrent

Spleen

Hemolysis

↑LDH

Urine

Acute

MCV Normal

PNH

G6PD

HD

Autoimmune

SLE

CLL RA

Hereditary spherocytosis

Recurrent

PNH

Hemolysis

Acute

urine

G6PD

HD
Autoimmune
SLE
Penicillin
Methyldopa
Spherocytosis
Spleen
PNH
G6PD
Coombs
Osmotic
Fragility
Steroid
Sickle
Chest
Visual
CNS
HD
HCT 32
Parvo
PCR
KAPLAN MEDICAL

Autoimmune
SLE
Penicillin
Quinidine
Methyldopa
Coombs +
↑ Reticulocyte
↑ LDH
↑ Bilirubin
↓ Haptoglobin
Hereditary
Spherocytosis
Spleen
PNH
Osmotic
Fragility

↑ LDH

SLE

Coombs ⊕

Osmotic

Fragility

PNH

HD → Autoimmune

SLE

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

Osmotic
Fragility

*Spleen

Indirect
→ Urine

Haptoglobin

Renal
Failure
ATN

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidin
Methyldopa

Coombs +

Steroi
Splenec

Hereditary spherocytosis

Recurrent

* Spleen

Osmotic
Fragility

urine

PNH

G6PD

HD
SLE
CLL
RA
Methyldopa
Coombs
Recurrent
Spleen
G6PD
KAPLAN MEDICAL

Sickle Cell
ED Pain
KAPLAN MEDICAL

HD Autoimmune

SLE RA

Penicillin
Quinidine
Methyldopa

↑ Reticulocytes
↑ LDH
↑ Bilirubin
↓ Hapt

Hemolysis

Hereditary
Spherocytosis

Recurrent

Spleen

PNH

G6PD

PNH
G6PD
KAPLAN MEDICAL

SLE
Methyldopa
Coombs
Steroid
Osmotic
Fragility
Spleen
Visual
CNS
SS → AS
HD
PCR
KAPLAN MEDICAL

SLE
Methyldopa
HD
PCR
ATN
KAPLAN MEDICAL

Sickle
COOMBS
OSMOTIC
FRAGILITY
SPLENECTOMY
PCR
KAPLAN MEDICAL

HD → Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

↑ Reticulocy
↑ LDH
↑ Bilirubin
↓ Hapto

Hereditary
Spherocytosi
Recurrent
Spleen

Osmotic
Frag

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyld

Hereditary
spherocytosis

Recurrent

Hemolysis

Acute

MCV

Indirect
bin → urine

Haptoglobin

vascular

Dark

→ Renal
Failure
ATN

PNH

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Coombs

Hereditary spherocytosis

Recurrent

Spleen

Hemolysis

Acute

MCV

urine

PNH

G6PD

SLE
CLL
RA
Methyldopa
Recurrent
PNH
Acute
MCV
G6PD
KAPLAN MEDICAL

Autoimmune
SLE
CLL
RA
Penicillin
Quinidine
Methyldopa
Hereditary Spherocytosis
Recurrent
Spleen
Hemolysis
↑ Retic
↑ LDH
↑ Bili
Acute
MCV Normo
Urine
NH

SLE
CLL RA
methyldopa
Coombs
Osmotic
Spleen
PNH
↓resp'n → ↑pCO_2 → ↓pH
KAPLAN MEDICAL

Autoimmune

SLE

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

Osmotic
Fragility

Spleen

Splenectomy

PNH

↓Resp → ↑pCO_2 → ↓pH

Haptoglobin

Intravascular

Autoimmune

SLE
CLL

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

Osmotic
Fragility

Spleen

Splenectomy

Haptoglobin

$\downarrow$ Resp
$pCO_2 \rightarrow \downarrow pH$

G6PD
KAPLAN MEDICAL

SLE
CLL RA
Penicillin
Quinidin
Methyldopa
Coombs
↑Reti
↑LD
↑B
Hereditary
Spherocytosi
Recurrent
Spleen
Urine
PNH
↓resp'n → ↑pCO_2 → ↓pH
Osmot
Frag
Complem
G6PD

SLE
RA
Methyldopa
↑ LDH
↑ Bilirubin
PNH
G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Coombs

Hereditary spherocytosis

Recurrent

Spleen

Urine

PNH

resp, ↑pCO_2 → ↓pH

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

↑ Reticulocyte

Hereditary
Spherocytosis

Hemolysis

↑ LDH

↑ Bilirubin

Indirect

Acute

MCV Normal
or slightly
↑ ↑

Recurrent

PNH

G6PD

Autoimmune

SLE

Penicillin

Coombs +

Steroid

Splenectomy

Osmotic

Fragility

Spleen

Splenectomy

$\uparrow pCO_2 \rightarrow \downarrow pH$

Complement

Dark

SLE

Penicillin

Quinidine

Methyldopa

Coombs +

Steroid

Splenectomy

Spherocytosis

Spleen

Osmotic

Fragility

Splenectomy

LDH

Bilirubin

Haptoglobin

PNH

Complement

DAF

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Coombs ⊕

Steroid
Splenectomy

Sickle

Hereditary
Spherocytosis

Recurrent

urine

PNH

AML
AA

Renal
failure
ATN

Splenectomy

↓pH

DAF

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary spherocytosis

Recurrent

Spleen

urine

PNH

AML

Hemolysis

Acute

MCV Normal or slight ↑

G6PD

KAPLAN MEDICAL

Sickle Cell

48 ♂ ED Pain

/Back /thigh

Exchange Transfusion

Steroid

Splenectomy

Coombs ⊕

Osmoti

Fragi

Spleen

Dx

Sugar-water

Autoimmune

SLE
CLL RA

Penicillin
Quinidin
Methyldop

Hereditary
Spherocytosi

Recurrent

Hemolysis

Acute

urine

PNH

AML
AA

G6PD

KAPLAN MEDICAL

SLE
Methyldopa
Spherocytosis
Recurrent
PNH
AML
AA
Thrombosis
KAPLAN MEDICAL

HD

Autoimmune

SLE

CLL RA

Penicillin

Quinidine

Methyld

Reticulocyte

Hereditary spherocytosis

Recurrent *

Hemolysis

indirect

urine

PNH

Acute

MCV Normal

AML

AA

Thromb

G6PD

HD

Autoimmune

SLE

CLL RA

Hereditary spherocytosis

Recurrent

urine

PNH

Acute

MCV

AML

AA

G6PD

SLE
CLL
RA
Reticulocytes
Hereditary spherocytosis
Recurrent
PNH
AML
AA
Thrombosis
G6PD
KAPLAN MEDICAL

Autoimmune
SLE
CLL
RA
Penicillin
Methyldopa
Recurrent
urine
PNH
AML
AA
Thrombosis
Acute
G6PD
KAPLAN MEDICAL

HD
Autoimmune
SLE
CLL RA
Penicillin
Quinidine
Methyldopa
Coombs +
Steroid
Splenectomy
Osmotic
Fragility
Spleen
Splenectomy
pCO2 → pH
Complement
DAF
CD55
CD59
Dx

HD → Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis

Hemolysis

↑ Reticulocyte
↑ LDH
↑ Bilirubin

Acute

MCV Normal
or slightly ↑

PNH

Thrombosis

G6PD

HD

Autoimmune

SLE

CLL

RA

Penicillin

Quinidi

Methyldopa

Hereditary spherocytosis

Recurrent

PNH

AML

AA

Thrombosis

Hemolysis

Acute

MCV

urine

G6PD

HD
Autoimmune
SLE
CLL RA
Penicillin
Quinidine
Methyldopa
Hereditary
spherocytosis
Recurrent
PNH
Hemolysis
↑Retic
↑LD
↑B
Acute
urine
G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary spherocytosis

Recurrent

Splen

Hemolysis

Indirect
bilirubin

→ urine

PNH

Acute

– AML
– AA

Thrombosis

G6PD

HD

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary
spherocytosis
Recurrent
* Spleen

Hemolysis

Acute

MCV

Urine

PNH

↓ resp, ↑ pCO_2

AML
AA

Thrombosis

G6PD

HD

Autoimmune

SLE

Penicillin

Quinidine

Methyldopa

Coombs ⊕

↑ Reticulocytes

↑ LDH

Indirect

↑ Bilirubin

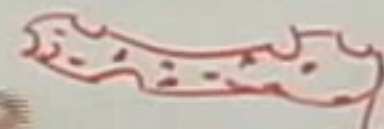
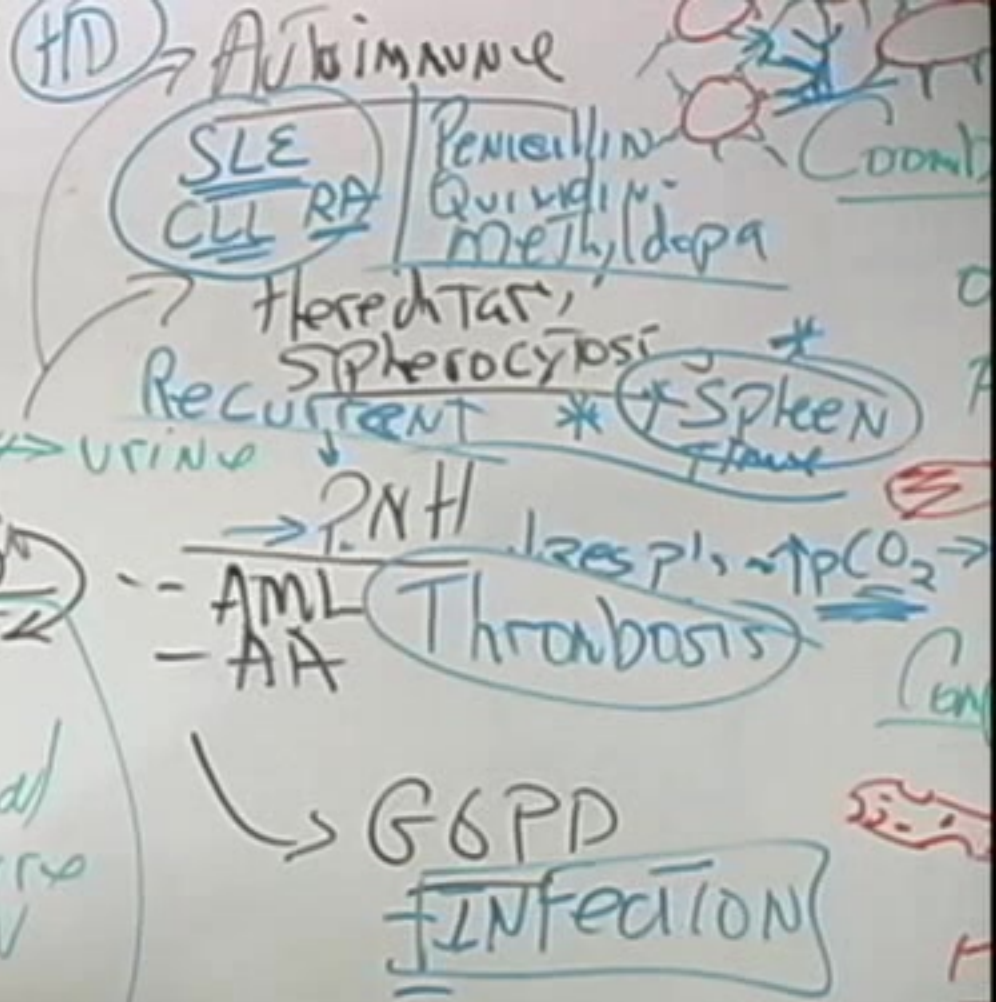
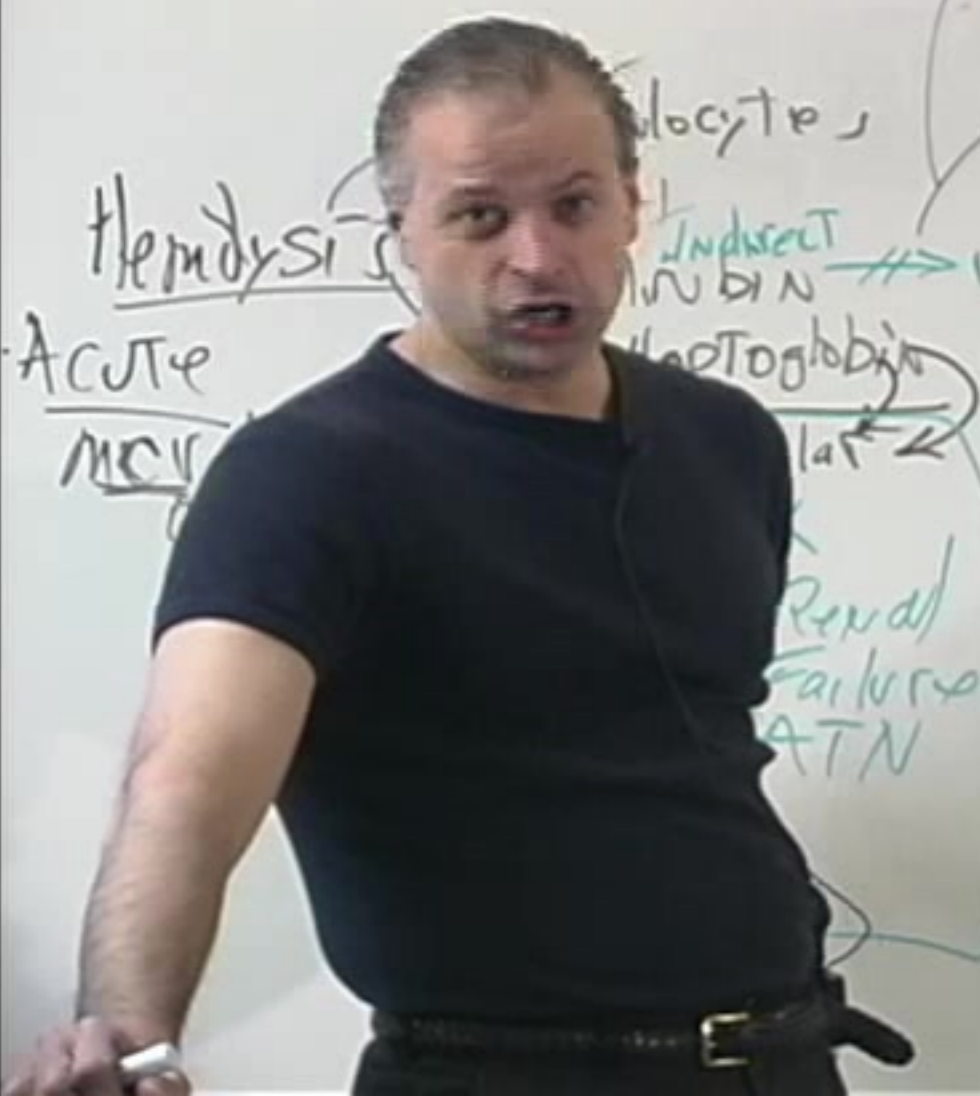
Spleen

Osmotic

Fragility

↓resp, ↑pCO_2 → ↓pH

Thrombosis

Complement

Heinz

HD
SLE
CLL
RA
Methyldopa
Recurrent
urine
AML
AA
Thrombosis
G6PD
INFECTION
KAPLAN MEDICAL

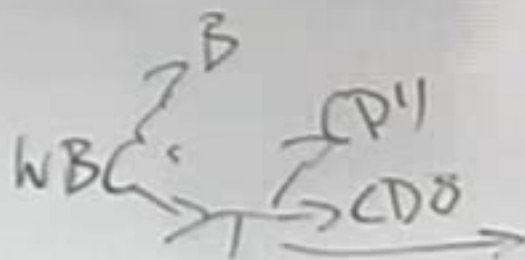
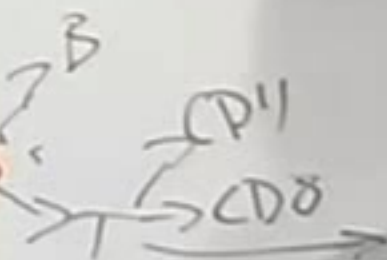
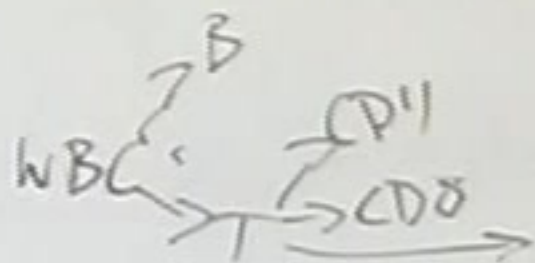
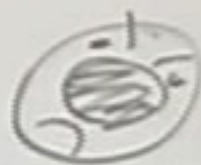
HD
Autoimmune
SLE
CLL RA
Penicillin
Quinidine
Methyldopa
Hereditary spherocytosis
Recurrent
Spleen
PNH
AML
AA
Thrombosis
G6PD
INFECTION
Hemolysis
↑ Reticulo
↑ LDH
↑ Bili
Acute
MCV Normal or slight ↑

SLE
CLL
RA
Indirect
Renal
Failure
ATN
AML
AA
KAPLAN MEDICAL

SLE
Methyldopa
PNH
INFECTION
KAPLAN MEDICAL

SLE
CLL
RA
Recurrent
urine
KAPLAN MEDICAL

Red
KAPLAN MEDICAL

Red
B
WBC
CD11
Platelet
KAPLAN MEDICAL

Red
B
WBC
CD4
CD8
T
Platelet
KAPLAN MEDICAL

Red
B
CD8
KAPLAN MEDICAL

Red

B

WBC

T

CD8

Platelet

CLL

0 –
1 –
2 –
3 –
4 –

WBC

> 90%
lymphs

Red

WBC → B, T → CD4, CD8

Platelet

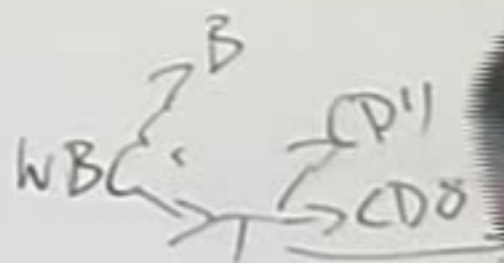
CLL

Africa

O WBC

→ >90% lymphs

0 – ↑W

1 – ⊕A

2 – SP

3 – AN

4 – ↓P

Co

Ste

Red

B

WBC

T

CD11

CD8

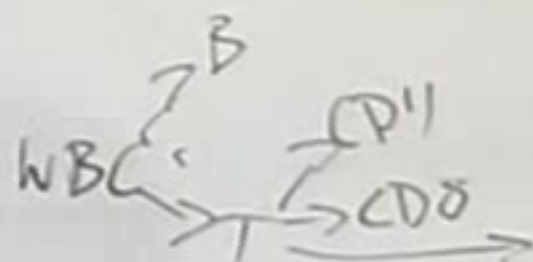
Platelet

CLL

0 WBC

>90%

lymphs

0 – ↑WB

1 – ⊕ No

2 – SPH

3 – ANE

4 – ↓pl

Coo

Ster

CD4

CD8

CLL

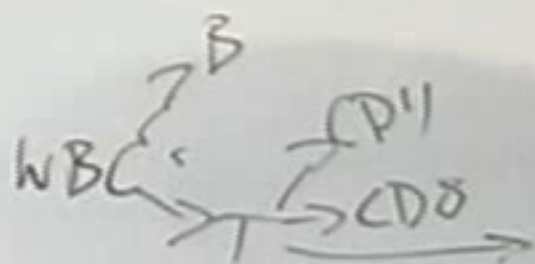
0 – ↑WBC

1 – ⊕ Nodes

2 – spleen

3 – Anemia

4 – ↓platelets

Coomb's

Steroids

Red

B

WBC

CD8

Platelet

CLL

0 – ↑W

1 – ⊕N

2 – SP

3 – AN

4 – ↓P

90%

Red

WBC

T

CD4

CD8

Platelet

CLL

Affects

WBC

> 90

KAPLAN MEDICAL

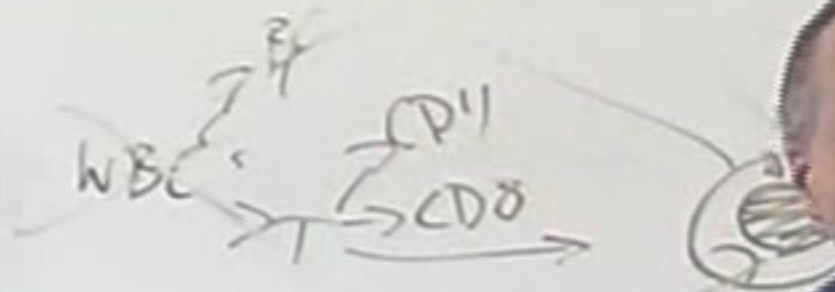
Aplastic

Red

WBC

Platelet

CLL

Affects

0 WBC

> 90%

lymphs

0 - ↑WBC } 10-12 years
1 - ⊕ nodes }

2 - spleen 5

3 - Anemia } 1-2 years
4 - ↓platelets }

Coomb's
Steroids

Allo <5

AUTO SCT

Aplastic
anemia

CLL

0 – ↑WBC
1 – ⊕ nodes } 10–12 years
2 – spleen } 5
3 – Anemia
4 – ↓platelets } 1–

Coomb's
Steroids

CLL

0 - ↑WBC } 10-12 years
1 - ⊕ nodes

2 - spleen 5

3 -
4 - } 1-2 years

0 WBC

>90% lymphs

Flud

Chlora

<50

SCT

KAPLAN MEDICAL

Aplastic
anemia
Red
WBC
CD4
CD8
T
Platelet
BMT
KAPLAN MEDICAL

Red
WBC
Platelet
Allo
<50
BMT
KAPLAN MEDICAL

Red
WBC
CD8
<50
BMT
KAPLAN MEDICAL

Aplastic
<50
KAPLAN MEDICAL

Aplastic
Anemia

CD8

<50
+Match
BMT

>50
no match

Aplastic

WBC

CD8

BMT

>50

no match

* Cyclosporin

Aplastic
Anemia
WBC
no match
* Cyclosporine
+ Anti Thymocyte
KAPLAN MEDICAL

Aplastic Anemia

WBC

CD4

CD8

Platelet

Allo

<50

+Match

BMT

>50

no match

*Cyclospor

+ Anti Thymo

<50
BMT
KAPLAN MEDICAL

Aplastic

<50

>50

Match

no match

* Cyclospor

+ Anti Thymo

<50

>50

no match

* Cyclosporine

+ Anti thymocyte globulin

Aplastic
anemia

WBC
CD8

Platelet
Allo

<50
+Match
BMT

>50
no match
* Cyclosporine
+ Antithymocyte
Globulin

WBC
BMT
KAPLAN MEDICAL

WBC
<50
BMT
KAPLAN MEDICAL

Aplastic
WBC
CD8
BMT
KAPLAN MEDICAL

Aplastic
WBC
CD8
Platelet
<50
Match
BMT
>50
no match
Cyclosporine
Thymocyte
Globulin
KAPLAN MEDICAL

Aplastic
CD8
Allo
<50
Match
BMT
>50
no match
KAPLAN MEDICAL

Acute

Adults
AML

Acute

Adults
AML
Acute
Children
ALL

Acute

Adults
AML
Pancytopenia

Children
ALL

Acute
Adults
AML
Children
ALL
KAPLAN MEDICAL

Adults
AML

Acute Childre
ALL

Pancytopenia
1° Metastatic
Infection

Acute

Adults — AML

Children — ALL

Pancytopenia

1° ↑ [illegible]

↑ Infection

Hep B, C, CMV

HIV

Acute

Adults

AML

Children

ALL

Pancytopenia

1°/Metastatic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

KAPLAN MEDICAL

Acute

Adults	Children
AML	ALL

Pancytopenia

1° Tmetastatic

Infection

Hep B, C, CMV

HIV

uss

ohol

liation

folate

Adults
AML

Acute Children
ALL

Pancytopenia

1°/Metastatic Ca
Infection
Hep B, C, CMV
HIV
Drugs
Alcohol
Radiation
B12/Folate
SLE

Acute
Adults
AML
Children
ALL
Pancytopenia
1° / metastatic
Infection
Hep B, C, CMV
HIV
Drugs
Alcohol
Radiation
B12 / Folate
SLE
Spleen
KAPLAN MEDICAL

Acute

Adults

AML

ALL

fection

B, C, CMV

Adults
AML

Pancytopenia
1° / metastatic
Infection
Hep B, C, CMV
HIV
Radiation
B12 / Folate
SLE
Spleen
Aplastic

Acute
Adults
Children
AML
ALL
Pancytopenia
Tired
Anemia
Low Platelets
Infection
Hep B, C, CMV
HIV
KAPLAN MEDICAL

Acute
Adults
AML
Children
ALL
Pancytopenia
1° Megaloblastic
Infection
Hep B, C, CMV
HIV
Drugs
Alcohol
Radiation
B12/Folate
SLE
Spleen
Tired
Anemia
Low Platelets
Infection
KAPLAN MEDICAL

Adults
AML
Acute
ALL
Tired
Low Platelets
Infection
Infection
Hep B, C, CMV
HIV
Drugs
Alcohol
Radiation
Folate
KAPLAN MEDICAL

Acute Child
Adults
AML
ALL
Tired
Low Platelets
Infection
Infection
B, C, CMV
KAPLAN MEDICAL

Acute

Adults
AML

Children
ALL

Pancytopenia
1° Megaloblastic
Infection
Hep B, C, CMV
HIV
Drugs
SLE
Spleen

Tired
Anemia
Low Platelets
Infection

Acute

Adults
AML

Pancytopenia
1° Malignancy
Infection
Hep B, C, CMV
HIV
Drugs
Alcohol
...diation
...2/Folate
SLE
Spleen

Children
ALL

Tired
Anemia
Low Platelets
Infection

Acute
Adults
AML
Children
ALL
Tired
Infection
Hep B, C
HIV
SLE
Aplastic
KAPLAN MEDICAL

Acute
Adults
AML
Children
ALL
Pancytopenia
Infection
Hep B, C
HIV
Drugs
Alcohol
Radiation
B12/Folate
SLE
Tired
Anemia
Low Platelets
Infection
KAPLAN MEDICAL

Acute

Adults
AML

Pancytopenia

Infection
Hep B, C
HIV

Folate

Children
ALL

Tired
Anemia
Low Platelets
Infection
Blast

KAPLAN MEDICAL

Acute

Adults
AML

Pancytopenia
1°/Meta...
Infection
Hep B
HIV

Radiation
B12/Folate
SLE
Spleen
Aplastic

Children
ALL

Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal

Adults
AML
Pancytopenia
Infection
Hep B, C
HIV
Drugs
SLE
Spleen
Aplastic

Acute Children
ALL
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal

Acute

Adults
AML

Pancytopenia

1° Idiopathic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radi

ate

Spleen

Aplastic

Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Acute

Adults

AML

Children

ALL

Tired

MO

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALLa

operoxidase

Rod

B12/Folate

SLE

Spleen

Aplastic

Acute
Adults
AML
Children
ALL
M0
Tired
Anemia
Low Platelets
Infection
M7
Blasts
Monoclonal
Myeloperoxidase
Auer Rod
CALLa
Drugs
Alcohol
Radiation
B12/Folate
SLE
Spleen
Aplastic
KAPLAN MEDICAL

Acute Child
ALL
Adults
AML
M0
M3:
M7
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
Folate
SLE
Aplastic
KAPLAN MEDICAL

Acute

Adults

AML

Children

ALL

M0

M3

M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Myeloperoxidase

Auer Rod

CALLa

Radiation
B12/Folate
SLE
Spleen
Aplastic

Acute
Children
ALL
Adults
AML
Tired
Anemia
Low Platelets
Infection
M0
M3: DIC
M7
Blasts
Monoclonal
CALLa
Myeloperoxidase
Auer Rod
Drugs
Alcohol
Radiation
B12/Folate
SLE
Aplastic
KAPLAN MEDICAL

Acute

Adults

AML

Children

ALL

M3: DIC

M0

M7

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALL

Myeloperoxidase

Auer Rod

KAPLAN MEDICAL

Acute

Adults

AML

Children

ALL

M0

M3: DIC

M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

CALLa

- Myeloperoxidase
- Auer Rod

Daunorubicin
+
A

Drugs
Alcohol
Radiation
B12/Folate

Acute

Adults

AML

M3:DIC

M0

M7

Children

ALL

Tired
Anerola
Low Platelots
Infection

Blasts

Monoclonal

CALLa

Myeloperoxidas

Auer Rod

Dawnorubicin

+

Ara-C

Aplastic

Acute

Adults

AML

M0

M3: DIC

M7

Children

ALL

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

CALLa

Myeloperoxidase
Auer Rod

Idarubicin
Daunorubicin
+
Ara-C

Acute

Adults

AML

Children

ALL

M0

M3: DIC

M7

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase

Auer Rod

CALLa

(Idarubicin) Daunorubicin

+

Ara-C

M3 Add ATRA

Acute

Adults — Children

AML — ALL

M0

Tired
Anemia
Low Platelets
Infection

M3: DIC

M7

Blasts

Monoclonal

CALLa

Myeloperoxidase
Auer Rod

Idarubicin
Daunorubicin
+
Ara-C

M3 Add ATRA

Adults
AML
M3:DIC
M0
M7
Auer Rod
Ara-C
M3 Add ATRA
KAPLAN MEDICAL

Children

ALL

CALLG

Acute
Adults
AML
Children
ALL
M0
M3:DIC
M7
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
CALL
Myeloperoxidase
Auer Rod
Idarubicin
Daunorubicin
+
Ara-C
M3 Add ATRA
KAPLAN MEDICAL

Acute

Adults — AML

Childre — ALL

Tired
Anemia
Low Platelets
Infection

M0

M3: DIC

M7

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALL

Idarubicin / Daunorubicin
+
Ara-C

M3 Add ATRA

Acute

Adults — AML

Children — ALL

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

...yeloperoxidase

CALLA

...bicin

Daunorubicin
Vincristine

Acute

Adults
AML

Children
ALL

Tired
M0 Anemia
M3: DIC
Low Platelets
Infection
M7

Blasts
Monoclonal

yeloperoxidase
CALLa
Rod

norubicin
Daunorubicin
Vincristine
ra-C
Prednisone
TRA

Acute

Adults
AML

Children
ALL

M0
M3: DIC
M7

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

Myeloperoxidase
er Rod

CALLa

unorubicin
+
Ara-C
ATRA

Daunorubicin
Vincristine
Prednisone

Acute
Adults
AML
Children
ALL
Tired
M0
Anemia
Low Platelets
Infection
M3: DIC
M7
Blasts
Monoclonal
Myeloperoxidase
Auer Rod
CALLa
Daunorubicin
+
Ara-C
M3 Add ATRA
KAPLAN MEDICAL

Acute
Adults
AML
Children
ALL
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
CALLa
Daunorubicin
Vincristine
Prednisone
BMT
KAPLAN MEDICAL

Acute Children

AML

ALL

100,000

Tired
Anemia
Low Platelets
Infection

M0

M3: DIC

M7

Blasts

Monoclonal

Myeloperoxidase

Auer Rod

Daunorubicin

Ara-C

Add ATRA

BMT

Adults Acute Children

AML ALL

100,000,0

Chemo

Acute Children

Adults

ALL

Tired
Anemia
Low Platelets
Infection

Blasts

100

Chemo 99.

Acute

Adults

AML

Children

ALL

Tired

M0 Anemia

Low Platelets

Infection

M3: DIC

M7

Blasts

Monoclonal

CALLa

Daunorubicin

Vincristine

Prednisone

BMT

BMT

Acute

Adults

AML

Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALL

Chemo

more

Daunorubicin

Vincristine

Prednisone

BMT

Acute
Adults
AML
Children
ALL
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
CALL
Chemo
more
Daunorubicin
more
Vincristine
Prednisone
KAPLAN MEDICAL

Acute

Adults
AML

Children
ALL

100

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal
CALLa

Chemo 99.
more

Daunorubicin
more

Vincristine
Prednisone

BMT

Acute Children

Adults

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALL

100,0

Chemo 99.9%

more 99.9%

Daunorubicin more 99.9

Vincristine

Prednisone

BMT

Acute

Adults

AML

Children

ALL

Tired

M0

Anemia

Low Platelets

Infection

M3: DIC

M7

Blasts

Chemo

more

more

KAPLAN MEDICAL

Adults

Acute Children

ALL

Tired

100

Chemo 99.

more

more

Acute Children

Adults

ALL

Tired

Anemia

Platelets

Blasts

Chemo 99.

more

more

KAPLAN MEDICAL

BMT
KAPLAN MEDICAL

BMT

Matched
And

20%

Acute
Adults
AML
Children
ALL
M0
Tired
Low Platelets
Infection
M7
Blasts
Monoclonal
CALLa
Daunorubicin
KAPLAN MEDICAL

hildren

LL

0,000,000,000

BMT

Allogeneic

BMT

00,000,000

Matched And Related 20%

Unrelated

%.

KAPLAN MEDICAL

Adults
Acute
Children
AML
ALL
Tired
Anemia
Low Platelets
Infection
BLASTS
MONOCLONAL
100,000,00
Chemo 99.9%
more
more 99.9%
Vincristine
Prednisone
ATRA
BMT
BMT
KAPLAN MEDICAL

Adults

AML

Acute Children

ALL

M3:DIC

100,000,000,0

Chemo 99.9%

More

99.9%

KAPLAN MEDICAL

Acute
Adults
AML
ALL
Tired
Anemia
Low Platelets
Infection
M0
M3: DIC
M7
Blasts
Monoclonal
Myeloperoxidase
Auer Rod
Daunorubicin
+
Ara-C
M3 Add ATRA
BMT
KAPLAN MEDICAL

cute Children

ALL

100,000

Allogeneic

Acute
Adults
AML
M3:DIC
M0
M7
Tired
Anemia
Myeloperoxidase
Auer Rod
Daunorubicin
+
Ara-C
ATRA
BMT
KAPLAN MEDICAL

AML
ALL
100
BLASTS
BMT
KAPLAN MEDICAL

Acute

Adults Children

AML ALL

100

Tired
Anemia
Low Platelets
Infection

Acute
Adults
AML
Children
ALL
100
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
CALLa
Daunorubicin
Vincristine
Prednisone
BMT
KAPLAN MEDICAL

Acute

Adults

AML

Children

ALL

Tired

M0 Anemia

M3: DIC

CALLa

Daunorubicin

Vincristine

Prednisone

BMT

Adults
AML
Acute
Children
ALL
M3:DIC
M7
Jan 1
$0.01
M3
KAPLAN MEDICAL

ACUTE
AML
ALL
BLASTS
CALLA
KAPLAN MEDICAL

Acute

Adults

AML

Children

ALL

M3:D

Jan 1

$ 0.01

CALLa

Daunorubicin

Vincristine

BMT

Children

ALL

BMT

Allogeneic

BMT
Autologou-
And
KAPLAN MEDICAL

BMT

Autologous +/-

Allogeneic

20%

Unrelated 30%

Acute

Adults

Children

AML

ALL

Tired

Platelets

M3

hildren

ALL

BMT

5 10

gous +/- Stem

ogeneic Matched

And Re

Matched

unorch

ncr

dn

BMT

BMT

% INFECTION ↑

5 10 15 20 30

Autologous +/- Stem

Allogeneic Matched Re-
And

Matched
& U

KAPLAN MEDICAL

% INFECTION ↑

BMT

5 15 20 30

Autologous +/- Stem Cells

…ogeneic Matched And Related

Matched Unrelated

BMT
Autologous
No GVHD
Allogeneic
KAPLAN MEDICAL

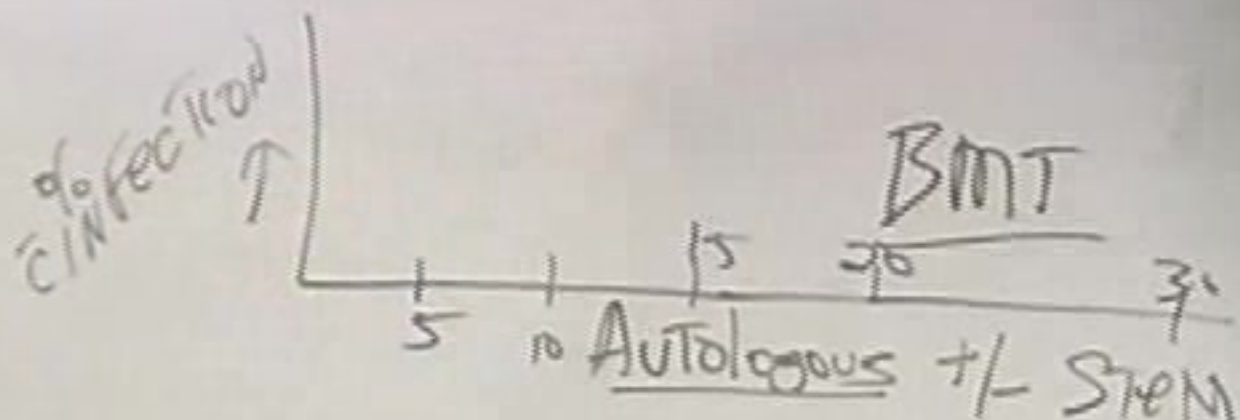
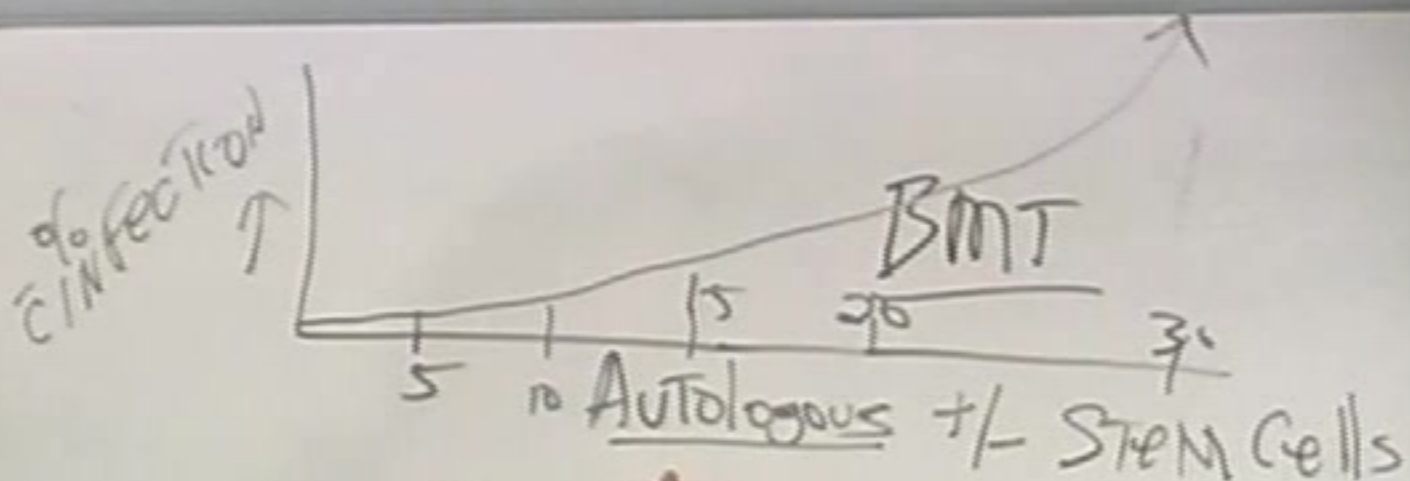
BMT

5

15

20

Autologous +/- Stem Cell

No GVHD No rejectio

Allogeneic Matched And Relate

Matched & Unrela

Children

ALL

CALL

% INFECTION

BMT

AUTO

GVHD NO

Allogeneic

Children
% INFECTION
BMT
5
10
15
20
Autologous +/-
No GVHD
KAPLAN MEDICAL

Acute

Adults

Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALLa

Acute

Adults	Children
AML	ALL

M0 – M7

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

% infection

Vincristine

Prednisone

Acute Childre

Adults
AML

ALL

M0
M3: DIC
M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

CALL

Myeloperoxidase
er Rod

Daunorubicin
+
Ara-C
ATRA

Daunoru
Vincri
Prednis

Acute

Adults

AML

Children

ALL

M3: DIC

Intrathecal MTX

Adults Acute Children

AML ALL

M3:DIC

M0 Tired

AN

Low

INF

M7

Intrathecal

MTX

-Myelo

Aver

M3 Add

% infection

5

39 ♀ WBC

240,000

Acute Children

Adults
AML

ALL

Tired
Anemia
Low Plate
Infec

M3: DIC

M0
M7

% Infection

5
10

39 ♀ WBC
240,000

CVA (Confusion)
Dyspnea
Vis

Myelo
Auer

Down

M3 Ad

KAPLAN MEDICAL

Acute Children

AML

ALL

Tired
Anemia
Low Platelets
Infection

% Infection

39 ♀ WBC
240,000
CVA (confused)
Dyspnea
Visual)

Acute

Adults
AML

Children
ALL

M3: DIC

Intrathecal
MTX

Infection

39 ♀ WBC
240,000

CVA (confusion)
Dyspnea
Visual

MTX
KAPLAN MEDICAL

Acute

Adults — AML

M0

M7

Children — ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALLa

Intrathecal MTX

Daunorubicin

Vincristine

Prednisone

BMT

Acute
Adults
AML
Children
ALL
M3:DI
Intrathecal
MTX
39 ♀ WB
CVA
Dyspne
visual
Leukapher

AML

ALL

M3 DIC

Intrathecal

MTX

39 ♀ WBC

Leukapheresis

Children

ALL

% INFECTION ↑

BMT

5 10 15 20

Autologous +/- St

No GVHD No

39 ♀ WBC

240,000

(ON-floro)

Allogeneic Match

And

Match

KAPLAN MEDICAL

Acute Leukemia

End

Acute Children

ALL

CML

Tired

Low Platelets

Autolog

No G

Allog

Adults — Acute — Children

CML

AML

ALL

M3:DIC

M0

M.T.

CALLa

Daunorubicin
+
Ara-C
ATRA

Daunorubicin
Vincristine
Prednisone

Acute Children

Adults

ALL

CML

CL

M3

KAPLAN MEDICAL

Acute Children

Adults

AML

ALL

CML

CL

Tired

Anemia

Low Platelets

DIC

MT.

CALL

Daunorubicin

Vincristine

Prednisone

BMT

Acute

Adults
AML

Children
ALL

CML

CLL

Children

ALL

CML

CLL

O – ↑WBC

BMT

15 20

Autologous +/–

No GVHD No

Allogeneic

CALL

Daunorub

Vincris

Prednis

Children

ALL

CML

CLL

0 - ↑WBC
1 - ⊕ nodes
10-12 year

elets
ion
MT.
tional

CALL

Autologous
No GVH

Daunorubicin
Vincristine
Prednisone

CML

CLL

0 – ↑WBC } 10–12
1 – ⊕ Nodes } years
2 – spleen

KAPLAN MEDICAL

CML

CLL

0 – ↑ WBC } 10–12 years
1 – ⊕ Nodes }
2 – spleen — 5
3 – Anemia
4 – ↓ plate…

Acute

Adults

Children

AML

ALL

CML

6–12 weeks

M3:DI

Tired

Platelets

MT.

KAPLAN MEDICAL

Acute Children

Adults

AML

ALL

CML

6-12 weeks

M3:D

M.T.

Acute

Adults | Children

AML | ALL | CML | CL

6-12 weeks

M3: DIC

M.T.

Children

ALL

CML

CLL

0 – ↑WBC
1 – ⊕ Nodes
} 10–12 years

2 – spleen
5

3 – Anemia
4 – ↓platelets
} 1–2 years

Acute

Adults

Children

AML

ALL

CML

CLL

6-12 weeks

M3: DIC

M7

M3 Add

ults

AML

B:DIC

Acute Children

ALL

Tired

ons

nts

ctional

CALL

Daunorubicin

Vincristine

Prednisone

CML

↑

CLL

0 - ↑WB

1 - ⊕ Nod

2 - Sph

3 - Ane

4 - ↓pl

Children
ALL

CML

↑

CLL

0 – ↑WBC } 10–12 years
1 – ⊕ Nodes }
2 – spleen   5
3 – Anemia } 1–2 years
4 – ↓platelets }

ML

CLL

0 - ↑WBC } 10-12
1 - ⊕ nodes } years
2 - spleen 5

…ia } 1-2
…lets } years

Fludarabine

Coll…

CLL

0 - ↑WBC
1 - ⊕ Nodes } 10-12 years

2 - spleen 5

Anemia
↓platelets } 1-2 years

Fludarabine

(Ch bucil)

Adults Acute Children

AML ALL CML CLL

6-12 weeks

M0 Tired
Anemia
Low Platelets
Infection

M3: DIC

M7

KAPLAN MEDICAL

ALL
CML
CLL
KAPLAN MEDICAL

Acute

Adults | Children

AML | ALL

CML | CLL

6-12 weeks

M3: DIC

M0

M7

Tired

Idarubicin

M3 Add

CML
CLL
KAPLAN MEDICAL

Adults Acute Children

AML

ALL

CML

CLL

M3:DIC

M0

M7

Tired

Anem

Adults Acute Children

AML ALL CML CLL

-12
weeks

M3: DIC

Intra
M.T.

47 ♂ officer
Tire
↑58

0-
1-
2-
3-
4-

Acute Children

AML

ALL

Tired
Ane
Low
Infe

Bl

Mo

Myelop

Auer Ro

Down

Add

CML

CLL

47 ♂ office
Tire
↑58,000 WBC
Diff → >90% lymphs

0 - ↑WB
1 - ⊕ Nod
2 - Sph
3 - Ane
4 - ↓pl

Coo
Ster

Adults AML

Acute Children ALL

CML

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Tire

↑58,000

Diff

Acute Children

Adults

AML

ALL

CML

CL

6-12 weeks

M3:DI

47 ♂ office

Tire

↑58,000 WBC

Diff ⇒ >9

M.T.

>90%

Adults AML

Acute Children ALL

M0

M3: DIC

M7

CML

47 ♂ officer

Tire ↓

↑58,000 WBC

>90% ← diff → >90%

neutrophils

CLL

lymphs

0–

1–

2–

3–

4–

Acute
AML
ALL
CML
CLL
Tired
Low Platelets
Infection
Blasts
Monoclonal
58,000 WBC
Diff
CALL
Daunorubicin
Vincristine
Prednisone
CML
Reactive
BMT
KAPLAN MEDICAL

Adults AML

Acute Children ALL

Tired
Anemia
Low Platelets
Infection

M3: DIC

M7

Blasts

Monoclonal

CALLa

Myeloperoxidase

Daunorubicin

Daunorubicin
Vincristine
Prednisone

BMT

Acute

Adults | Children

AML | ALL

CML

M0 – M7

DIC

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

CALLa

>90%
neutroph

Daunorubicin
Vincristine
Prednisone

CML

BMT

Acute Children

Adults

AML

ALL

6-12 weeks

M3:

CML

47 ♂ office

Tire

↑58,000 W

Diff

>90% neutrophils

Reactive

leukom

BMT

Acute Children

Adults

AML

ALL

6-12 weeks

M3: DIC

M0

M7

Tired

CML

CLL

47 ♂ office

Tire

↑58,000 WBC

Diff

>90% neutrophils

LAP

low

CML

leukemoid

Acute

Adults

AML

6-12 weeks

M3: DIC

M0

M7

Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALLa

Daunorubicin

Vincristine

Prednisone

BMT

Adults

AML

ALL

CML

Tired
Anemia
Low Platelets
Infection

Blasts

spleen

90%
neutrophils

LAP

Low

High

CML

Prednisone

BMT

Adults

AML

6-12 weeks

ALL

year

CML

↑spleen

Abdaim

90%

neutrophils

LAP

Blasts

Low

CML

Adults

AML

6-12 weeks

ALL year

CML

CLL

Tired

Anemia

Platelets

Blasts

LAP

Low

High

CML

Dx

Philadelphia

Reactive

Leukemoid

Vincristine

Prednisone

BMT

Adults

AML

6-12 weeks

M3:D

ALL

year

20%

CML

Imatinib

CLL

WBC

> 90%

Neutrophils

LAP

Low

High

CML

Dx

Philadelphia

Reactive

Leukemoid

BMT

Adults

AML

ALL year

CML

CL

6-12 weeks

Tired

Anemia

Platelets

Blasts

Imatinib

90%

High

CML

Dx

Reactive

leukemoid

Adults
AML
6-12 weeks
M3: DIC
M0
M7
Tired
Anemia
Low Platelets
Infection
Blasts
Monoclonal
CALL
Daunorubicin
Vincristine
ALL
year
CML
* Imatinib
90% improv
Oral
LAP
Low
CML
Dx
Philadel

ALL
year
CML
CLL
6-12
AML
Tired
Low Platelets
* Imatinib *
90% improve
Oral
Blasts
CALL
LAP
Low
High
CML
Dx
Philadelphia
Reactive
Leukemoid
Prednisone
BMT
KAPLAN MEDICAL

Tired
Low Platelets
Blasts
Monoclonal
Imatinib
Oral
LAP
Low
Dx
KAPLAN MEDICAL

Adults

AML

6-12 weeks

ALL

year

CML

* Imatinib *

90% improve

Oral

LAP

Low

CML

Dx

Philadelphia

6-12 weeks
M3:DIC
M7
BMT
KAPLAN MEDICAL

Adults
AML
ALL
Tired
Low Platelets
M7
Blasts
CALL
BMT
KAPLAN MEDICAL

Adults

AML

6–12

mo

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

ALL

year

CML

* Imatinib *
90% improve
Oral

neutrophils
LAP

Low

CML

Adults
AML
ALL
year
CML
Tired
Blasts
Imatinib
90% improve
Oral
LAP
CALL
Low
CML
Prednisone
Philadelphia
BMT
KAPLAN MEDICAL

Adults
AML
6-12
weeks
Tired
ALL
year
CML
Imatinib
90% improv
Oral
Hydroxyurea
LAP
low
CML
Dx
KAPLAN MEDICAL

AML

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

year CML

* Imatinib *
90% improve
Oral

Hydroxyurea

Neutrophils
LAP

Low

CML
Dx
Philadelphia

Prednisone

CML
Imatinib
90% improve
Oral
Hydroxyurea
LAP
Low
High
CML
Dx
Philadelphia
Reactive
Daunorubicin
Vincristine
Prednisone
Blasts
BMT
KAPLAN MEDICAL

CLL

0 – ↑WBC
1 – ⊕ nodes,
2 – spleen
3 – Anemi
4 – ↓platele

Coomb
Steroi

0 WBC
⇒ >90%
lymphs

roxyurea
neutrophils
LAP

Low
CML
Dx
Philadelphia

High
Reactive
Leukemoid

Adults

AML

ALL year

CML

6-12 weeks

M3: DIC

* Imatinib *

90% improve

Oral

Hydroxyurea

neutrophils

LAP

Low

High

CML

Dx

[Philadelphia]

Reactive

leukem

Adults
AML
ALL
year
CML

6-12 weeks

Tired
Platelets

* Imatinib *
90% improve
Oral
Hydroxyurea
neutrophils
LAP
Low
High
CML
Dx
Philadelphia
Reactive

Adults
AML
6-12 weeks
M3:DIC
M7
ALL
year
CML
* Imatinib *
90% improve
Oral
Hydroxyurea
neutrophils
LAP
CML
Dx
Philadelphia

CML
Imatinib
Oral
CML
KAPLAN MEDICAL

20%

year

CML

* Imatinib *

90% improv

Oral

LAP

Low

High

CML

Dx

Philadelphia

Reactive

leukemoid

CLL

>90%

lymphs

0 - ↑WBC

1 - ⊕ Nodes

2 - splee

3 - Anem

4 - ↓plate

Coom

Steroi

ALL
CML
CLL
Imatinib
Oral
Blasts
Daunorubicin
Vincristine
Prednisone
KAPLAN MEDICAL

Adults
AML
ALL
year
CML
Tired
Anemia
Low Platelets
Blasts
Monoclonal
CALL
* Imatinib *
90% improve
Oral
Hydroxyurea
LAP
CML
Dx
Philadelphia
KAPLAN MEDICAL

Aplastic
<50
BMT
KAPLAN MEDICAL

no match
*Cyclosporine
*Anti thymocyte
Globulin
KAPLAN MEDICAL

APLASTIC
KAPLAN MEDICAL

Aplastic
<50
+Match
BMT
>50
no match
*Cyclosporine
+Anti Thymocyte
Globulin
KAPLAN MEDICAL

Plasma Cell
Ig G, Ig A
KAPLAN MEDICAL

Aplastic

Plasma Cell Ig G, IgA →

<50

+Match

BMT

Ig G, Ig A → "M" "

Plasma Cell → Ig G, Ig A → "M"-Spike

SPEP

OAF

KAPLAN MEDICAL

Ig G, Ig A → "M-Spike"

SPEP

OAF → Bones → ↑ Calc

Aplastic

WBC

Plasma Cell

550

no match

closporine

thymocyte

Aplastic
Plasma Cell
Ig G, Ig A → "M-Spike"
SPEP
O.A.F → Bones → ↑
KAPLAN MEDICAL

Plasma Cell

IgG, IgA → "M-Spike"

SPEP

OAF → Bones → ↑ Calci

Aplastic

Plasma Cell → Ig G, Ig A

O.A.F →

CD8

Allo

<50

Match

BMT

Aplastic

Cell → IgG, IgA → "M-

SPE

OAF → Bone

Bence Jones

<50

BMT

Aplastic

Plasma Cell → Ig G, Ig

O.A.F

Bence Jo

550

no match

*Cycl

cyte

Globulin

Cyclosporine
KAPLAN MEDICAL

Aplastic

Plasma Cell

WBC

350

Globulin

Aplastic

Plasma Cell

Ig G,

O.A.F

Bence J

↑ uric Ac

* Cyclosporine

* Anti Thymocyte

Globulin

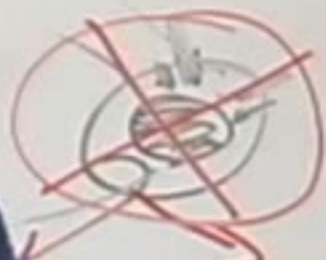
→ Ig G, Ig A → "M"-Spike

SPEP

→ OAF →

↑ Calcium

Protein → Renal

Aplastic

WBC

35000

match

Aplastic

Plasma Cell → Ig G, Ig A → "M

O.A.F → Bon

Bence Jones P

↑ uric Acid

Aplastic

Plasma Cell

WBC

Platelet

Allo

Anti Thymocyte

Aplastic

Plasma Cell

Ig G, Ig A → "M

O.A.F → Bon

Bence Jones Pr

↑ uric Acid

Aplastic
Anemia

>10%
Plasma Cell → Ig G, Ig A → "M-
SPE

OAF → Bone

Bence Jones Pro

Uric Acid

350000

Anti Thymocyte
Globulin

>10%
Plasma Cell → IgG, IgA → M-Spike
SPEP
OAF → Bone → ↑ Calc
Bence Jones Proteins → Renal
↑ Uric Acid

10%

Plasm...

Ig G, Ig A → "M-Spike" → Kidney

SPEP

* ...A.F → Bones → ↑ Calcium

...ence Jones Protein → Renal

... Acid

Aplastic

Red

WBC

> 10%
Plasma Cell

350,000

match

Aplastic

Myeloma

>10% Plasma Cell

IgG, IgA → "M-S

SPEP

OAF → Bones

e Jones Prote

tic Acid

Aplastic

Myeloma

>10% Plasma Cell

IgG IgA → "M-

SPEP

Bone

Bence Jones Prot

↑ uric Acid

Aplastic Anemia

> 10% Plasma

CD8

550,000

no match

* Cyclosporine
* Anti Thymocyte Globulin

Aplastic

Myelom

> 10%

Plasma Cell

550

no match

* Cyclosporine

* Anti Thymocyte

Globulin

Myeloma

>10%

…aCell

$IgG, IgA \rightarrow$ "M"-Spike

SPEP

* OAF → Bones → ↑ Calcium → Kidney

Bence Jones Protein → Renal

↑ Uric Acid

KAPLAN MEDICAL

Aplastic

WBC

Platelet

Allo

sma Cell

osporine

Aplastic

Myeloma

>10% Plasma Cell

Ig G, Ig A →

OAF →

Jones

ic Acid

Myeloma

>10%

IgG IgA → M-Spike

STOP

OAF

Bones → ↑ Ca

Bence Jones Protein → Ren

Myeloma

Plasma Cell

Ig G, Ig A → "M-Spike"

SPEP

OAF → Bones → ↑ C

Bence Jones Protein → Re

↑ Uric

Myeloma

>10% Plasma Cell

IgG IgA → M-Spike

SPEP

Aplastic

Myeloma

Cell

IgG, IgA → "M-Spike"

SPEP

Aplastic

Myeloma

<10% Plasma Cell

IgG, IgA → "M

SPE

KAPLAN MEDICAL

Aplastic

WBC

Platelets

<10%

Plasma Ce

Aplastic

Myeloma

<10% Plasma Cell

Ig G, Ig A

Allo

<50

BMT

Myeloma

<10% Plasma Cell

IgA → "M-Spike"

SPEP

MGUS

NOR

...SSO...

...match

...closporine

...anti-thymocyte

Globulin

Myeloma

<10%

Plasma Cell

KAPLAN MEDICAL

Myeloma

<50

BMT

Myeloma

<10%

IgG, IgA → "M-Spike"

SPEP

↓

MGUS 1–2%

Aplastic

Anemia

<10%
Plasma Cell

WBC

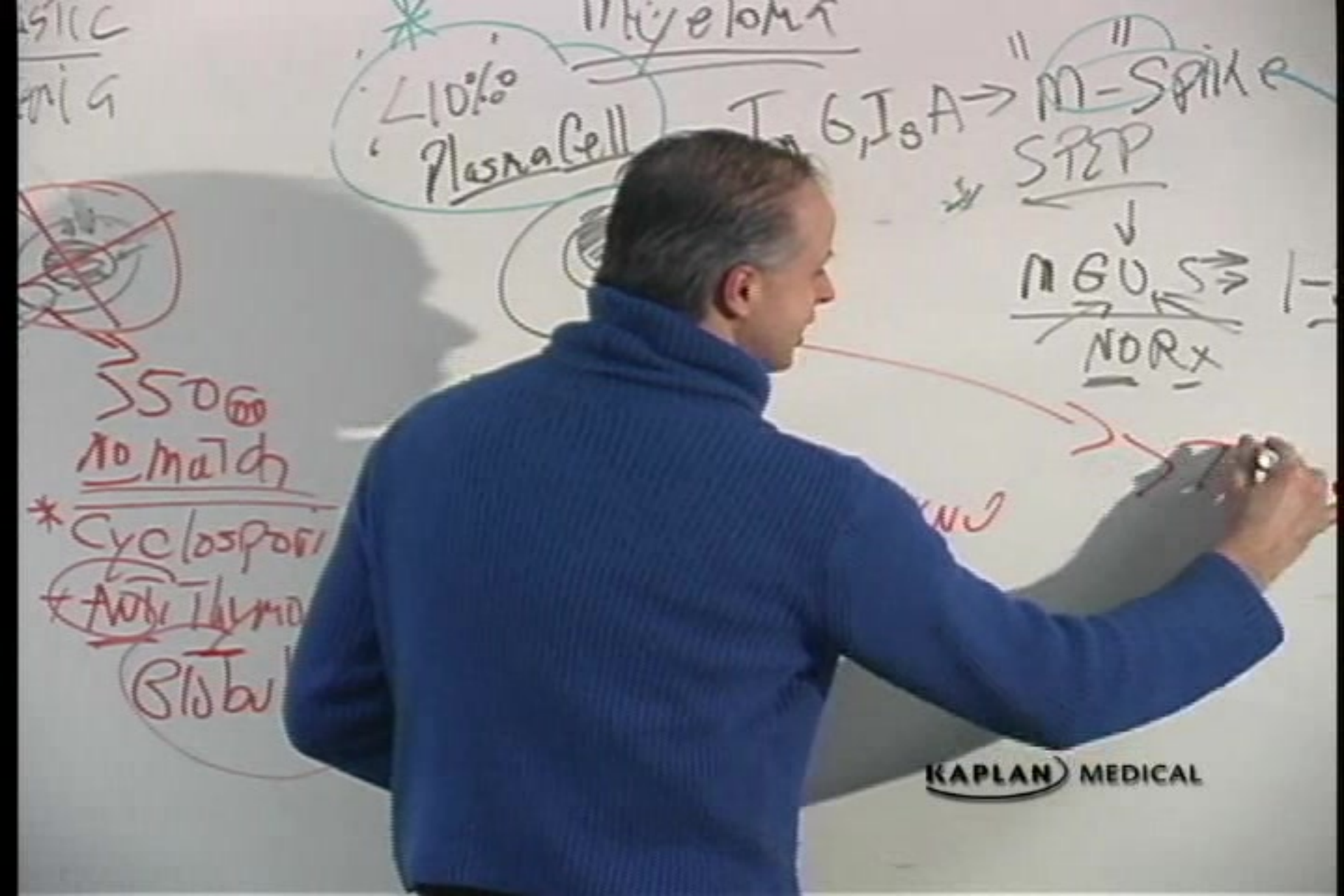
Platelet

Allo

match

Aplastic

Anemia

Myeloma

<10% Plasma Cell

IgG, IgA → "M-Spike"

SPEP

MGUS

NO Rx

<70

AUTO

Stem cell

Aplastic
anemia

350,000
no match
*Cyclosporine
*Anti thymocyte
globulin

Aplastic

Myeloma

<10%
Plasma Cell

Ig G

WBC

Platelet

<70

AUTO
Stem cell

Aplastic

WBC

Myelom

<10%

Plasma Cell

Ig

550

match

closporine

thymocyte

bulin

<70

AUTO

Stem cell

Myeloma

<10%

Cell

Ig G, Ig A → M-

MGU

<50

BMT

Vincristine

Myeloma

<10% Plasma Cell

IgG, IgA → "M-Spike"

SPEP

MGUS

NO Rx

550

no match

*Cyclospori

*Anti Thymo

Globu

Myeloma

<10%

Plasma Cell

G, IgA → "M-Spike"

SPEP

↓

MGUS ⇒ 1–2% myeloma

NO Rx

>70

KAPLAN MEDICAL

Myeloma

Plasma Cell → Ig G, Ig A → "M-Spike"

1–2% myeloma

<70

>70 → Fragile

Aplastic

WBC

<10% Plasma

Aplastic

Myeloma

10%

Plasma Cell

<50

Allo

BMT

<70

Myeloma

<10%

IgG, IgA → "M-Spike"

SPEP

↓

MGUS ⇒ 1-2% myeloma

NO Rx

>70

Healthy

Thalidomide

Fragile

Melphalan

Aplastic
WBC
Platelet
Allo
<10%
Plasma Cell
KAPLAN MEDICAL

<10%
Plasma Cell → Ig G, Ig A
<70
AUTO Stem cell
Vincristine
Adria
Dexamethaso

<10%
Plasma Cell
WBC
no match
Cyclosporine
Anti Thymocyte
Globulin
<70
AUTO
Stem cell
KAPLAN MEDICAL

KAPLAN MEDICAL

KAPLAN MEDICAL

Aplastic

Red

WBC

Platelets

<10%
Plasma Cell

no match

Cyclosporine

Anti Thymocyte

Globulin

<70

Auto

<10%
Plasma Cell

Ig G, Ig A → M-Spike

SPEP

MGUS

NO Rx

<70

AUTO
Stem cell

Vincristine

Adria

Dexamethasone

>70

Healthy

Thalidomide

<70
70
KAPLAN MEDICAL

Cell
IgG, IgA → M-Spike
STEP
MGUS
1–2%
NO Rx
<70
>70
KAPLAN MEDICAL

Aplastic
Anemia

CD8

<50

Myeloma

<10%
Plasma Cell

Ig G, Ig A

<70

AUTO
Stem cell

Vincristine
Adria
Dexamethaso

CLL
KAPLAN MEDICAL

CLL
KAPLAN MEDICAL

CLL
KAPLAN MEDICAL

CLL
ALL→Blasts
KAPLAN MEDICAL

CLL → Smear → Normal
ALL → Blasts
KAPLAN MEDICAL

CLL → Smear → Normal

ALL →

→ Smear → Normal

→ Blasts

320

Normal

32 ♀ Neck Mass

warm, red,

...mear → Normal)

...ASTS

32 ♀ Neck Mass

Not warm, red, tender

Excision

CLL → Smear → Normal
ALL → B
32
NOT
Exc
KAPLAN MEDICAL

CLL → Smear → Normal

ALL

CLL → Smear → Normal
KAPLAN MEDICAL

CLL → Smear → Normal
ALL
32 ♀ Neck M
NOT warm, red
→ Excisional
KAPLAN MEDICAL

→ Normal

32 ♀ Neck Mass

NOT warm, red, tender

→ Excisional Biopsy

...near → Normal

...STS

32 ♀ Neck Mass

Not warm, red, Tender

Excisional Biopsy

CLL → Smear → Normal

ALL → Blasts

Stage

32 ♀ Neck M

NOT warm, red,

→ Excisional B

CLL → Smear → Normal
ALL → Blasts
Stage
Radiate
I
II
III
IV
KAPLAN MEDICAL

CLL → Smear → Normal
Blasts
I
KAPLAN MEDICAL

CLL
ALL
KAPLAN MEDICAL

CLL → Smear → Normal
ALL → Blasts
Stage
Radiate
I
II
Chemo
III
IV
KAPLAN MEDICAL

CLL → Smear → Normal
NOT
KAPLAN MEDICAL

CLL → Smear → Normal
ALL
Stage
32
NOT
KAPLAN MEDICAL

CLL → Smear → Normal
Stage

CLL
KAPLAN MEDICAL

KAPLAN MEDICAL

NeckMass
BB
KAPLAN MEDICAL

CLL → Smear → Normal
Blasts
I
KAPLAN MEDICAL

CLL → Smear → Normal
L → Blasts
Radiate
I
II
Chemo
III
IV
KAPLAN MEDICAL

ALL → Blasts
KAPLAN MEDICAL

CLL → Smear → Normal
Blasts
I
II
III
IV
Any stage c 'B' symptoms
KAPLAN MEDICAL

CLL → Smear → Normal

ALL → Blasts

Stage

I

II

III

Chemo

IV

Any stage c 'B' sympt

KAPLAN MEDICAL

Blasts
IV
KAPLAN MEDICAL

CLL

Blasts

Radiate

I_a - One Group

II_a Two Groups

III Both sides of D

IV

Stage c 'B' symptoms

ALL → Blasts

Stage

Radiate

Ia - One

IIa Two

Chemo

III

IV

Any stage

CLL

ALL → Blasts

Stage

I a - One Group

II a Two Groups

III Both sides of Diaphragm.

Chemo

IV

Any stage c̄ 'B' sympt

CLL → Smear → Normal

-ONE GROUP

CLL → Smear → Normal

- ONE GROUP

32 ♀

NOT

→ Exc

CLL
ALL
KAPLAN MEDICAL

Smear → Normal

One Group

Groups

'B' Symptoms

32 ♀ Neck Mass

NOT warm, red, Tender

→ Excisional Biopsy

Chest, Abd, Pelvic CT

CLL → Smear → Normal

ALL →

-ONE Group?

Groups

sides,

phragm.

'B' symptoms

NOT

Bone

CLL → Smear → Normal

ALL

Stage

-One Group

32 ♀ Ne

Not

est, Abd

one Marro

hsidio,

iaphragm.

e c̄ 'B' sym

CLL → Smear → Normal

HD

32 ♀ M

NOT Warm

→ Excision

Chest, Ab

Bone Marr

I - One Group?

Both sides of Diaphragm.

ē B symptoms

CLL → Smear → Normal

ALL → Blasts

HD

Heart → Adria
B
V
D

Stage
Radiate
I a - One Group
II a Two Groups
III

IV
Any stage c̄ B symptoms

32
NOT

KAPLAN MEDICAL

CLL → Smear → Normal

HD

32

NOT

ALL

Heart → Adria

BLeom

V

D

→ Ex

Che

Bone

-ONE Group?

Stag

Group

Tage c B symptoms

Q ♀ NeckMass

warm tender

xcisi opsy

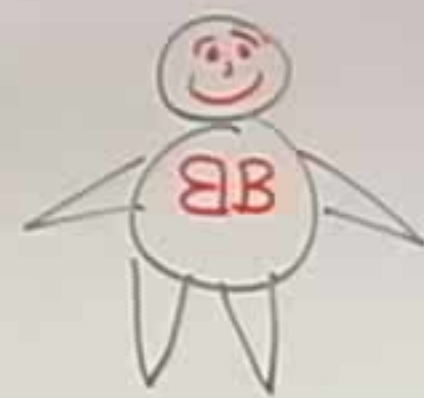
est, Abd CT

Marr

CLL → Smear → Normal

HD

32

NOT

Heart → Adria

Lungs → Bleomycin

→ Ex

Che

Bone

I_a - One Group

V

D

Two Groups

thside,

Diaphragm.

B Symptoms

KAPLAN MEDICAL

CLL → Smear → Normal

Heart → A

Lungs → B omycin

I - One Group

Groups

Both sides,

of Diaphragm.

Stage c B symptoms

32

NOT

→ Ex

Che

Bone

CLL → Smear → Normal

LL → Blasts

Stage

Ia - One Group
>95%

IIa Two Groups

III Both sides of Diaphragm.

HD

Heart → Adria

Lungs → B Leo

Smear → Normal

HD

Heart → Adria

Lungs → B Leo

I a - ONE Group
>95%

Two Groups

Both sides
Diaphragm.

c B symp

CLL → Smear → Normal

Stage I & II 80-90%

HD

Heart → Adria

Lungs → Bleomycin

I a - One Group >95%

V

D

II - Two Groups

...h side,

...aphragm.

...syst... B symptoms

32 ♀ Neck Mass

NHL

Stage III

NOT w... d, Tender

Exc... Biopsy

Chest ... lvic CT

BB

CLL → Smear → Normal

ALL → Blasts

Heart → Ad

Lungs → B

Stage

Radiate

Ia - One Group >95%

IIa Two Groups

III Both sides of Diaphragm.

IV

Any stage c B's

Stage I, II 80-90%

HD

Adria

Bleomycin

D

symptoms

32 ♀ Neck Mass

NOT war... tender

→Exci... ...opsy

Chest ... ...ic CT

Bone m...

NHL

Stage III or IV

80-90%

Cycl

H

O

P

♀ Neck Mass

tender

NHL

Stage III or IV

80-90%

32 ♀ Neck Mass

Not ...m, red, tender

...nal Biopsy

..., Pelvic CT

...rrow

NHL

Stage III or IV

80-90%

C - Cyclophosamide

H - Adriamycin

O

P

BB

Stage I, II 80-90%
HD
Adri
BL
52 ♀ Neck Mass
NOT warm, red, tender
Excisional Biopsy
Chest, Abd, Pelvic CT
Bone Marrow
NHL
Stage III or IV
80-90%
Cyclophosami
H - Adriamy
O
P

CLL → Smear → Normal

Stage I & II 80-90%

HD

52 ♀

ALL → Blasts

→ Adria

→ Bleomycin

Vinblastine

D

NOT warm

→ Excision

Chest, Ab

& Marr

Stage

Radiate

Chem

Symptoms

KAPLAN MEDICAL

CLL → Smear → Normal

Stage I & II 80-90%

HD

AL

Heart → Adria

Lungs → B Leomycin

-One Group
>95%

Vinblastine

D

Two Groups

Both sides

Diaphragm.

ANY c B symptoms

Stage I II 80-90%

HD

NORMAL

52 ♀ Neck Mass

NOT warm, red, Tender

Excisional Biopsy

Chest, Abd, Pelvic CT

Bone Marrow

SPEP

U/A

UEP

CLL → Smear → Normal

Stage I, II 80-90%

HD

52 ♀

Blasts

Heart → Adria

→ B Leomycin

Vinblastine

D

Excision

IV

Any stage c B symptoms

CLL → Smear → Normal

HD

Heart → Adria

Lungs → Bleomycin

I – One group >95%

Vinblastine

D

II Two groups

B symptoms

Not warm, …

Excisional

Chest, Abd, …

Bone Marrow

1% / year →

♀ Neck Mass

NHL

warm, red,

III or IV

Marrow

/year →

BB

32 ♀ Neck Mass

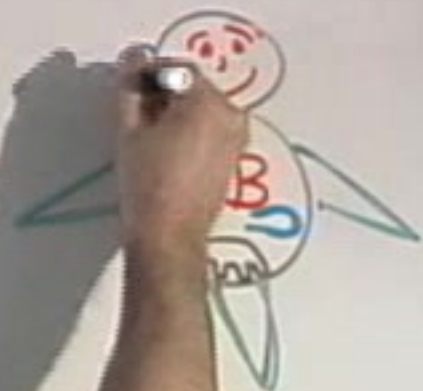
NHL

not warm, red, tender

III or IV

Excisional Biopsy

Chest, Abd, Pelvic CT

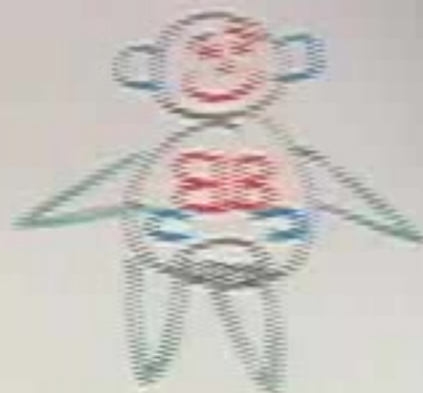
Marrow

1% / year →

Excisional Biopsy

Chest, Abd, Pelvic CT

Bone Marrow

NHL

Stage III or IV

C - Cyclophosphamide

H - Adriamycin

O - Vincristine

P

32 ♀ Neck Mass

NOT warm ... tender

Excis... ...opsy

Chest, A... CT

NHL

Stage III or ...

80-90%

Ritu...

...hosphamide

...driamycin

O - VINCRISTINE

P

Two Groups
of Diaphragm.
KAPLAN MEDICAL

32 ♀

NOT w

→ Exc

Chest

Bone M

1% (y

52 ♀

NOT wa

→ Excis

Chest,

Bone Ma

1% /ye

groups

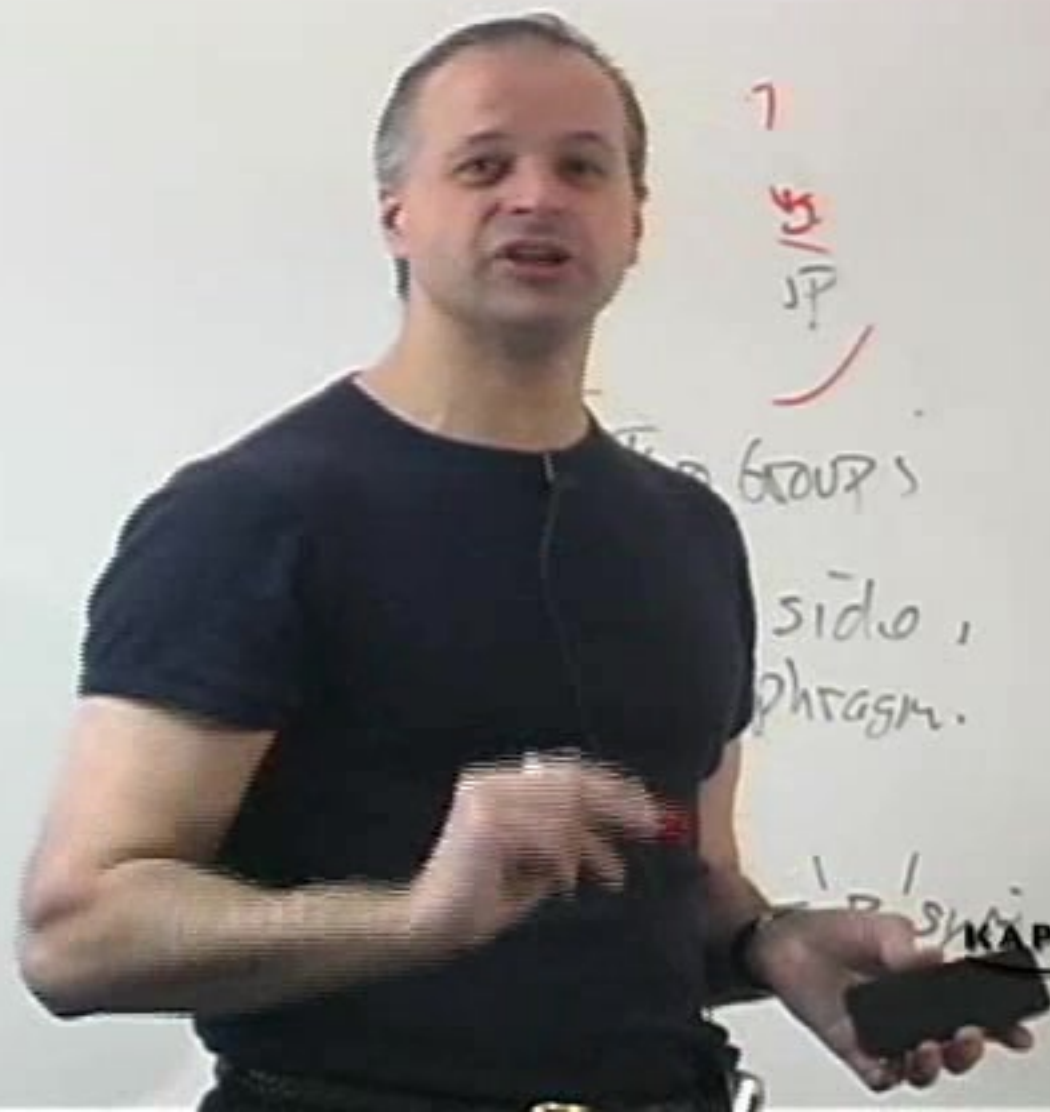
side,

phragm.

Ia

IIa Two Grou

III Both
of Diag

IV

ANY STAGE

NHL
Rituximab
CD20
III or IV
BB
Cyclophosamide
H-Adriamycin
O-VINCRISTINE
P
KAPLAN MEDICAL

22♀
KAPLAN MEDICAL

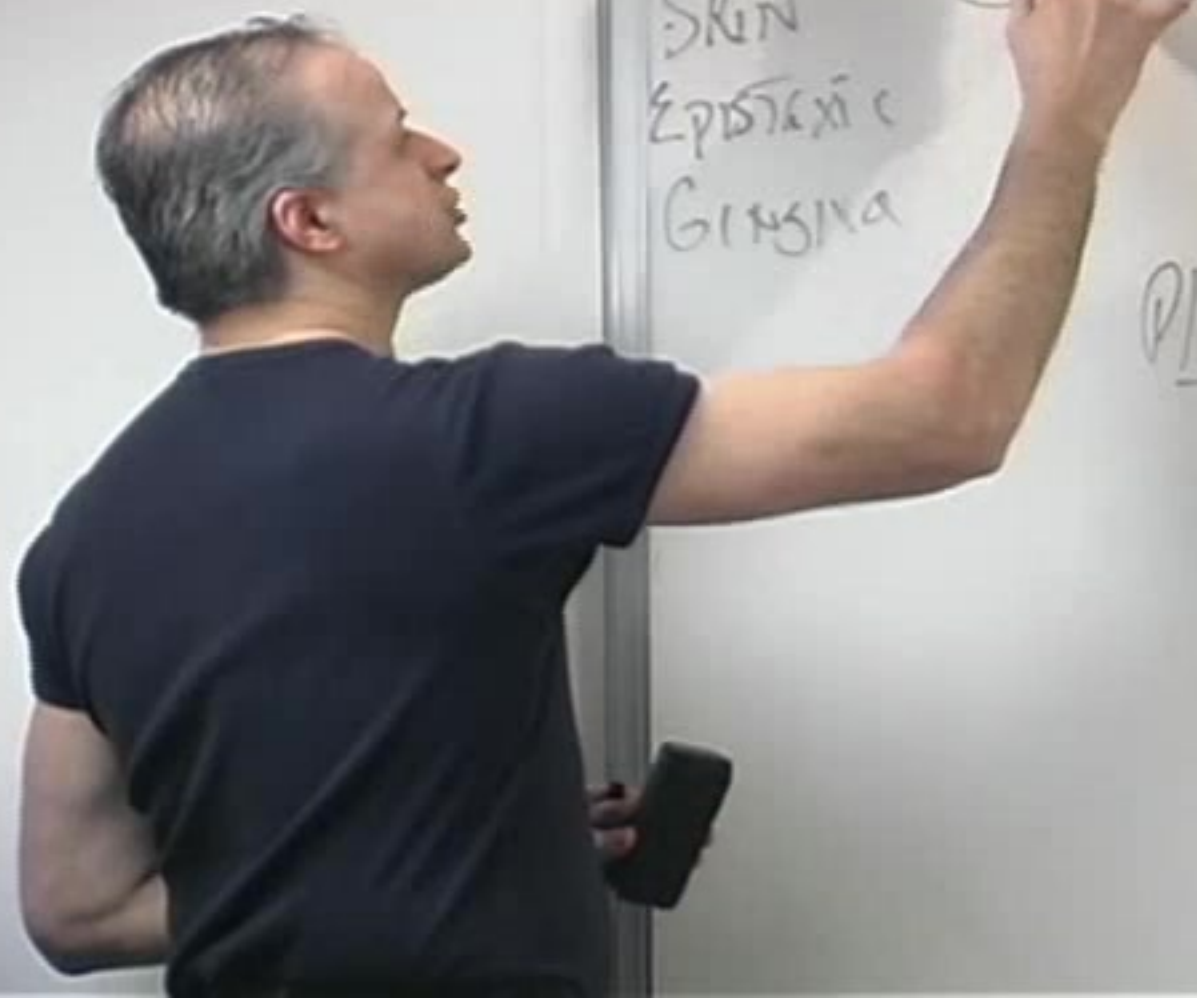
22♀ ED
Epistaxis/Petech
KAPLAN MEDICAL

22♀ ED
· Epistaxis/Petechiae
PT: Normal (R)
KAPLAN MEDICAL

22♀ ED
· Epistaxis/Petechiae
PT: Normal (R)
aPTT: ↑↑ 58 second,
Platelets:
KAPLAN MEDICAL

22♀ ED
· Epistaxis/Petechiae
PT: Normal (R)
aPTT: ↑↑ 58 seconds
Platelets: 227,000
KAPLAN MEDICAL

22♀ ED
Epistaxis/Petechiae
PT: Normal (R)
aPTT: ↑↑ 58 second
Platelets: 227,000
KAPLAN MEDICAL

Platelet
Skin
22♀ ED
· Epistaxis/Petechi
PT: Normal (R)
aPTT: ↑↑ 58 secon
Platelets: 227,00
KAPLAN MEDICAL

Platelet
Factor
22 ♀ ED
Skin
Epistaxis
Gingiva
PT: Normal (R)
aPTT: ↑↑ 58 sec
Platelets: 227,0
KAPLAN MEDICAL

Platelet | Factor | 22 ♀ ED

Skin | Joint | . Epistaxis/Petechiae

Epistaxis | Muscles

: Normal (R)

T: ↑↑ 58 second,

etS: 227,000

Platelet | Factor
Skin | Joint
Epistaxis | Muscles
Gingiva

22 ♀ ED
· Epistaxis/Petechiae

PT: Normal (R)
aPTT: ↑↑ 58 second,
Platelets: 227,000

22♀ ED
· Epistaxis/Petechiae
PT: Normal (R)
↑↑ 58 second,
227,000
KAPLAN MEDICAL

Platelet Factor

Joint

Muscles

22♀ ED

· Epistaxis/Petechiae

PT: Normal (R)

aPTT: ↑↑ 58 second,

Platelets: 227,000

Platelet
Factor
22 ♂ ED
Skin
Joint
Epistaxis
Muscles
Gingiva
KAPLAN MEDICAL

KAPLAN MEDICAL

2 ♂ ED

taxis/Petechi

rnal (12)

↑ 58 secon

227,0

22 ♀ Epistaxis

PT : 12

aPTT :

Platelet
Factor
22 ♂ ED
Skin
Joint
Muscles
· Epistaxis/Petechiae
PT: Normal (R)
aPTT: ↑↑ 58 second,
Platelets: 227,000
KAPLAN MEDICAL

22 ♂ ED
Epistaxis/Petechiae

PT: Normal (12)
aPTT: ↑↑ 58 sec
Platelets: 227,000

22 ♀ Epistaxis
Healthy
PT: 12
aPTT: 24
Platelets 2_,000

22 ♀ Epistaxis
+ Petechiae
Health
PT : 12
aPTT : 24
Platelets 27,000

KAPLAN MEDICAL

Platelet
Factor
22 ♂ ED
Skin
Joint
· Epistaxis/Petechiae
Muscles
Epistaxis
Pt: Normal (R)
Gingiva
aPTT: ↑↑ 58 second
GI
GU
CNS
Platelets: 227,000
KAPLAN MEDICAL

Factor

Joint

Muscles

GI
GU
CNS

22 ♂ ED

· Epistaxis/Petechi

PT: Normal (R)

aPTT: ↑↑ 58 secon

Platelets: 227,00

ITP
22 ♀ Epistaxis
Petechiae
KAPLAN MEDICAL

22 ♀ Epistaxis
Healthy
Petechiae
PT :
aPTT :
Platelets
KAPLAN MEDICAL

22 ♀ Epistaxis
Healthy
Petechiae
27,000

chiae
cond,
000

IT

22 ♂ ED

Epistax... ...chiae

PT: Nor...

...PTT: ↑ ...d,

...lets: ...000

22 ♀ Epistaxis

Healthy Petechiae

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

Epistax... ...chiae

PT: No...

...TT: ↑ ...d,

...lets: ...000

22 ♀ Epistaxis

Healthy Petechiae

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

Epistax... ...chiae

PT: Nor...

...PTT: ↑ ...

...lets: ...000

22 ♀ Epistaxis

Healthy Petechiae

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED
Epistax... ...chiae

PT: Nor...
...PTT: ↑ ... ...d,
...lets: 000

22 ♀ Epistaxis
Healthy Petechiae
PT: 12
aPTT: 24
Platelets 27,000

22 ♂ ED

Epistaxis

PT: Nor

PTT: ↑

lets: 2 000

22 ♀ Epistaxis

Petechiae

Healthy

PT: 12

aPTT: 31

Platelets 27,000

22 ♂ ED

Epistaxis

22 ♀ Epistaxis
Petechiae